Our Mississippi Partnering to keep America's river great

SUMMER '11

Great Flood of '11

Captain Todd Mainwaring said he could feel the Mississippi River's power and energy beneath him here near the Old River Control Structure, where flood waters are being diverted down the Atchafalaya River.

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Our Mississippi

is a quarterly newsletter of the

U.S. Army Corps of

Engineers about its work

in the Upper Mississippi River Basin. It is published

in cooperation with other

and other river interests with whom the Corps

collaborates and partners

toward long-term sustain-

ability of the economic uses and ecological integ

of the river system.

state and federal agencies

Rainfall 10 times greater than average and high snow melt across the 200,000-square-mile Mississippi River watershed produced the most powerful flood in the river's history. Would the ambitious Mississippi River and Tributaries Project—built in the wake of a deadly 1927 flood—pass its ultimate test?

MAJOR GEN. MICHAEL WALSH spent the night of May 1 in the biting rain in the middle of a raging Mississippi, leading a flood fight from the center of the historic chocolate tide so he could both watch and feel its rise.

On his shoulders was a decision he'd call "simply grave." As commander of the Mississippi River Commission, should he order the detonation of explosives that would activate a spillway and intentionally flood 130,000 acres of farms and fertile crop land, or let the river rise to the sure destruction of Cairo, Ill., and countless other cities in the flood's unfortunate path?

He would trust the engineers who designed the massive, system-wide Mississippi River and Tributaries Project in the 1930s. Its specific set of reservoirs, spillways and other flood control measures were designed to work in tandem to prevent a repeat of the 1927 flood disaster. That year, 500 people died, 600,000 were left homeless and 41,000 buildings were destroyed, and he wasn't willing to risk a repeat as this flood flowed with equal or perhaps even greater force.

"I don't have to like it," Walsh said at the time. "But we

must use everything we have in our possession in the system to prevent a more catastrophic event."

As floodwaters now recede, only one death has been attributed to the flood of 2011 on the Mississippi River, and early estimates show a \$50 billion savings in potential economic loss. But the victory didn't happen without a tough fight, more tough choices and unprecedented teamwork.

Commencing 'Operation Watershed'

That this would be an epic flood year was obvious as early as late March, when torrential rains began falling across parts of the Upper Midwest and making their way down tributaries into the Mississippi River. As the first line of protection, the Corps of Engineers operated reservoirs along the Ohio, Missouri and other tributaries, capturing as much water as possible. This filled reservoirs to record-setting levels and helped keep the lower river from overtopping the flood control structures authorized in 1928 as part of the ambitious Mississippi River and Tribuataries Project.

Continued on page 2 >>



FROM FAR LEFT: Coast Guard Reservist Darren Cliffe and another member of a Coast Guard Disaster Area Response Team carry sandbags across a flooded lawn to a home in Brookport. Ill., where they helped residents erect a sandbag wall to save the home from rising floodwaters. The distant explosion marks the Armv Corps of Engineers' detonation of the Birds Point New Madrid Floodway on May 2.

May 2: A tough but easy call

By May 1, it was obvious that reservoirs alone would not stem the steadily rising river. The river gauge at Cairo, Ill., had passed 61 feet, a tipping point that signaled the need to use explosives and intentionally breach a key feature in the flood control project. The Birds Point-New Madrid Floodway would need to be activated for the first time since 1937. That decision would inundate farmland and homes lying in the floodway.

From an engineering perspective, the decision was not easy or hard, just scientific, Walsh said, because "the river tells us when it's time to operate the system as designed."

But from a human perspective, he said, "the decision was grave because it would lead to loss of property and livelihood, either in the floodway or in an uncontrolled area that was not designed to flood."

Driving home the potential consequences was the fact that the Honorable R.D. James of Missouri, a colleague on the Mississippi River Commission, was personally impacted by the choice.

Only one death was attributed the flood, as compared to the 500 lives lost in 1927, a fact Gen. Walsh and others attributed to a flood control system that worked and a lot of heroic teamwork.

"My family's land lies within the floodway, and I could not displace from my mind what the decision would mean to my friends and neighbors who live and farm the floodway's 130,000 acres," James said. "But when the National Weather Service issued a forecast of 63 feet on the Cairo, Ill., gauge on May 2, I realized that a decision on activation was imminent.

"As I sat with Maj. Gen. Walsh throughout the day, my position as a member of the commission weighed heavily on my soul. I knew the decision points of activation were a part of federal law, and that decision lay with the MRC. I know that Mai. Gen. Walsh withheld his order to activate until the moment there was no choice. When he gave the order, I prayed for the safety of all involved, and for all affected. I applaud his delayed and deliberate approach to giving that order and support him in doing so."

May 2 – 13: Buying time

The activation of the Birds Point–New Madrid Floodway reduced the forecasted crest near Hickman, Ken., by 3.8 feet over three days and prevented the river from overtopping federal levees protecting cities and towns in Illinois, Kentucky, Missouri and Tennessee.

As waters from the Upper Mississippi and Ohio rivers joined at the confluence below Cairo on May 3, the flood grew to monstrous proportions. Its flows of more than 2.3 million cubic feet per second (cfs) were equal, Gen. Walsh noted, to the power of more than "20 Niagara Falls" flowing every instant.

On May 10, the river crested at 47.8 feet in Memphis after setting new records at New Madrid and Caruthersville, Mo. Col. Vernie Reichling, Memphis District commander, had some 150 employees walking levees, inspecting them and helping communities, saying public safety was the top priority.

Along the swollen St. Francis River in Arkansas, a tributary of the Mississippi, the Memphis District kept the Huxtable Pumping Plant (one of the world's largest storm water pumping stations) operating continuously for almost three consecutive months, approaching the plant's previous operational record of 120 days of non-stop pumping.

The river still inundated 6.8 million acres of farmland in unprotected areas between Cape Girardeau, Mo., and the Head of Passes in Louisiana. About 10,000 people were evacuated due to backwater flooding.

April 30-mid-May: Slowing the torrent

Risks still remained to Baton Rouge and New Orleans—this flood potentially more damaging than Hurricane Katrina. To protect the system to the gulf, the Corps opened the Bonnet Carré, La., and the Morganza, La., floodways. Bonnet Carré, designed to protect the integrity of levees and floodwalls along New Orleans, was opened May 9 to keep the volume of river flows passing New Orleans at a manageable 1.25 million cfs. Spillway gates were expected to remain open through late June.

The May 14 opening of the Morganza Floodway was a more difficult decision, as it would flood some 90,000 acres. The structure was opened slowly and deliberately to spread the resulting inundation gradually over a one-week period.

> The operation of both Morganza and Bonnet Carré lowered the flood crest at New Orleans and Baton Rouge by 2.5 feet, protecting a 200-mile-long corridor of levees and floodwalls. The Corps' Mississippi Valley Division also

made history with the opening of Morganza; the decision marked the first time that the three floodways have operated simultaneously.

"By operating the MR&T [Mississippi River & Tributaries] system as designed, including the floodways, the value of this investment to our nation can be counted by what we have not lost—lives, critical infrastructure for the energy industry and more than 50 billion dollars in damages to homes and businesses," said Col. Ed Flemming, commander of New Orleans District.

On May 19, the river crested in Vicksburg, Miss., setting a record at 57.1 feet but not overtopping the Yazoo backwater levees, sparing some 24,000 acres of rich farmland. Even as the crest passed the city, Col. Jeff Eckstein, Vicksburg District commander, reminded the public the flood event was not over. "We must continue to remain vigilant and keep a close eye on the system until the danger has passed."

April 19-present: Keeping vigilent

From Cairo to Baton Rouge, record-setting river stages were recorded but channel improvements like river band cutoffs, dikes and revetments made at Memphis, Helena and Arkansas City proved key to keeping river crests well below prior record, despite flows near those experienced during the 1927 and 1937 floods.

In all, Corps officials estimate the flood control system saved some 9.8 million acres, thousands of homes and billions of dollars of infrastructure from inundation. Only one death was attributed to the flood, as compared to the 500 lives lost in 1927, a fact that Walsh and others attribute to a flood control system that worked and a lot of heroic teamwork.

"The MR&T system is performing as designed," he said, "but if this same beast is to be caged in future floods, we must soon begin work to repair, rebuild and reinvest in the infrastructure that saved so much and so many in 2011." -B.A.

Facebook key in flood fight sharing

updates to a large following."

Prior to the activation of the floodway, the center used the site to dispel rumors about the operation timing, condition of setback levees and impact of the explosive technology on the surrounding area.

Facebook became a primary source of information for the public and the media, partly because of the real-time updates. Quotes from senior leaders were posted on the site during news conferences, and field images and videos uploaded or linked via YouTube. "We received positive feedback from national media about our Facebook presence," said Mike Petersen, chief of Public Affairs for the St. Louis District. "They thought it was great to receive updates and information on their news feeds." The Facebook presence became more than an information source, though. It turned into a forum as the public engaged in debate, discussion and information sharing. The JIC also provided information from partner agencies such as the National Weather Service, the U.S. Coast Guard, the U.S. Geological Survey and state

and local organizations.

The majority of users expressed support of the Army Corps of Engineers' efforts, the Mississippi River Commission and MRC President Maj. Gen. Michael Walsh, perhaps because the site allowed for a more personal connection to leaders faced with tough decisions.

As one follower wrote, "I don't envy General Walsh and the decisions he has to make, Anderson noted that leadership throughout the Mississippi Valley Division

but I believe he has our best interests at heart. The Corps knows what it is doing." embraced the notion that social media can play a critical role in an emergency situation. "During a crisis, fast and accurate information is the key to building trust twith the public, and that's exactly what Facebook helped us accomplish during the Great Flood of 2011," he said. -S.R.



FLOOD-RELATED DEATHS HIGHEST FLOW RATE ACRES FLOODED STRUCTURES DESTROYED



Few people are fans of floods, but the Facebook pages set up by the U.S. Army Corps of Engineers to offer real-time information of the flood and flood fight progress attracted a following of thousands. Mississippi Valley Division Public Affairs Offices and the Joint Information Center (JIC) relied on social media tools like Facebook, Twitter, YouTube and Flickr, to rapidly disseminate information, and they'll continue to post updates as flood waters subside.

"Our teams used these tools to guickly get information out about our operations," said Bob Anderson, chief of Public Affairs for the Mississippi Valley Division. "It made a tremendous difference because we could dispel rumors and provide

The Joint Information Center, for example, created a Facebook page dedicated to the Birds Point-New Madrid Floodway on April 30. The following quickly exceeded 2,000, and it peaked at about 16,500 three days later.

"Thank you for all the graphs, charts, and maps ... and for keeping the public updated as much as possible," one user wrote.

As the record flood crest moved south, the center created another Facebook page "Floodfight 2011—Operation Watershed," with an overarching focus on the entire Corps effort. The page similarly received hundreds of public comments and questions.

GET CONNECTED

Receive updates and see how the flood unfolded via text, pictures and video:

- facebook.com/
- OperationWatershed2011 facebook.com/
- BPNMFloodway
- mvd.usace.army.mil



Mississippi River and Tributaries Project: Highlights

The 1928 Flood Control Act authorized the Mississippi River and Tributaries project, a massive, unified system of public works projects designed to work in tandem to protect against the largest storm series likely to occur in the river basin. Here are the main components at a glance.

Channel Stabilization: Revetments, dikes and dredging are tools that direct the river flow to protect levees from bank erosion. The channel features are used both as a tool for keeping a reliable depth for navigation and keeping flood control features from weakening.

Floodways: Three floodways in Louisiana and one in Missouri can be used to divert excess flows past critical river reaches to keep river water from overtopping or otherwise breaking through levees. The operation of any floodway is directed by the president of the Mississippi River Commission after consultation with the Chief of Engineers.

Tributary Improvements: These are the control structures and pumping stations that offer flood protection or drainage of tributaries that contribute a significant amount of water to the Mississippi. Four drainage basins are contained entirely within the project: St. Francis in east Arkansas, Yazoo in northern Mississippi, Tensas in northwest Louisiana and Atchafalaya in south Louisiana.

Levees: Project levees are designed to contain the river flow, except when intentionally diverted into a floodway. This extreme level of protection is provided from Cape Girardeau, Mo., to Venice, La. Some 3,727 miles of levees have been authorized through the project, with 3,486 miles of those completed. -K.S.

Flood Facts:

1927 vs. 2011

500 2.200.000 CFS 16,800,000 41,000

2,400,000 CFS 6,800,000 2,000-3,000*



Mid-flood elevation gauges in the Mississippi River south of the Vidalia Convention Center, Vidalia, La.

According to media reports. *Louisiana figures not yet compiled.







FROM TOP: *Cypress trees are* natural sculpture in southern Louisiana's Atchafalava Basin. Jason Farmer, a project manager based in St. Louis, takes residents of southern Louisiana on an airboat tour in search of ideas to inform development of an ambitious marsh restoration plan. Mud Bugs! Coastal marshes and lakes provide much of Louisiana's culture, livelihood and regional food highlights.

rojects designed to restore or protect Louisiana's coastal marshes are moving forward toward a planning and design phase, including the largest ever diversion of Mississippi River water for a purpose other than flood control.

One project called "Medium Diversion at White Ditch" would do what many scientists have called for in recent weeks—take advantage of the natural flow of sediment down the Mississippi during spring floods, according to U.S. Army Corps of Engineers planner Jason Farmer, who teamed up with New Orleans-based Andy MacInnes to head the project. It strategically diverts fresh river water into degraded habitat further destroyed by Hurricane Katrina.

"While there have been larger diversions for flood damage reduction, this is one of the largest river diversions ever approved specifically for ecosystem restoration," Farmer said.

Early analysis shows the project could keep pace with even worst-case predictions for rising sea levels in the proposed project area, he said.

Overall, Louisiana is losing its marsh at a rate of 16 square miles a year, or as one account puts it, a lost football field every hour." At the current rate, the shoreline is predicted to advance inland as much as 33 miles by 2040, resulting in a loss of 800,000 acres of wetland habitat for migrating birds, oysters, and other human and wildlife uses.

The new recommendations are part of a bigger restoration picture dating back to 1998 when the U.S. Army Corps of Engineers, in conjunction with Louisiana and other agencies, produced the Coast 2050 plan. That plan laid out the wetland loss, risk, cost and solutions for restoring the critical coastal region, said Greg Miller, chief of the Mississippi Valley Division Regional Planning and Environmental Southern Plan Formulation Branch. In 2007, Congress through the Water Resources and Development Act approved 15 of the most urgent projects, giving provisional approval to 10 if feasibility reports were completed by the end of 2010.

Six projects including White Ditch met the deadline and are moving into design. But the ambitious timeline meant completing in two years what typically would take five and required the New Orleans District, already constructing a massive hurricane protection project, to enlist other Corps offices for help

"It's nice to see that when you've got one area of the country in recovery mode, you can reach across the country and

get help like we have," Miller said. "This is a mode of business we're going to see more and more across the Corps."

Farmer and MacInnes led a regionally integrated team with individuals from St. Louis District, New Orleans District and Rock Island District. Residents of the bayou also became critical allies. Study managers would take locals into the field often, drawing on expertise gained from a lifestyle and culture uniquely intertwined with the landscape.

"Anytime we needed data, we went and asked local people what happened in the estuary, and they really wanted to help.

"Their heritage and livelihood is tied to these ecosystems. That's an important issue and one the federal government doesn't always deal well with."

That was a fantastic experience," added John Peukert, a St. Louis-based project manager who led another team. "Their heritage and livelihood is tied to these ecosystems. That's an important issue and one the federal government doesn't alwavs deal well with."

The project teams won a prestigious division-wide planning award for their work. The White Ditch project calls for a set of culverts in the Plaquemines Parish levee, a system that could be opened to allow a 35,000-cfs diversion from the Mississippi River into the marsh. Farmer envisions it being opened in March and April to capture the pulse associated with spring floods that brings river sediment flowing toward the Gulf. then again reduced or closed after April to minimize unintended effects.

A group including The Coalition to Restore Coastal Louisiana, Lake Pontchartrain Basin Foundation, Environmental Defense Fund and National Audubon Society called it groundbreaking and encouraged Congress to provide all necessary funding

Peukert's projects—spread over a massive area of more than 1,000 square miles—similarly showed positive benefits and include a control structure that would channel more freshwater into marshes and get a more natural hydrology into play. Even so, ambitious projects like his "Convey Atchafalaya Water to Northern Terrebonne Marshes" are just a tourniquet for helping to save some of the world's most critical coastal wetlands and migratory bird habitat, he said.

"What we have to do now is get the patient on life support and stabilized so to speak as the federal government, State of Louisiana and nongovernmental organizations get together and find the long-term solution to Louisiana's ecological sustainability." –K.S.

Innovation is a major emphasis of this group, which uses state-ofthe art sonar and acoustic doppler devices to accurately map the bends. Davinrov said. river bottom or measure water speed and direction. That information In recent years, ecosystem impacts have become a larger focus of is applied to models, created and tested in the center. Those in turn the river training structures, both in terms of projects designed spelead to new ways of maintaining a safe and navigable channel depth cifically for their ecosystem benefits and development of navigation and in some cases habitat restoration for fish and other aquatic life. structures that benefit wildlife "What we're all about is trying to manage sediment, whether to make Chevrons were developed because they lead to better fish habitat the river deeper or wider or create some diversity," said Davinroy, the behind the dike, creating miniature islands more favored by fish than center's river engineering chief. "It's all about how sediment is falling out." the flat sandbars formed behind traditional structures, he said. In all, the center's staff keeps tabs on approximately 900 structures Bendway Weirs, located underwater and uniquely angled to installed along 300 river miles. A majority were built over a century improve bend safety, were developed as an alternative to shoreline ago when unpredictable river depths and snags made steamboat structures because the endangered least terns were nesting on sandtravel an occasional death sentence. bars where projects otherwise would have been built.

As early as 1824, the federal government charged the then Engineer Corps of the Army to remove river obstructions. Increasing commerce in the mid-1800s led to even more federal involvement in navigation. The post-Civil War era saw an explosion in levees, wing dams, dikes and ietties, "Sediment's been an issue since the Corps launched a navigation

comes into the system.





Purinaton's tourina Twelve Views of Water, along with other works can be viewed at nancylpurington.com.



Training the Untrainable

IF YOU'VE SEEN THE MIDDLE MISSISSIPPI from the air or by boat, chances are you've seen the work of Rob Davinroy and his colleagues at the Applied River Engineering Center in St. Louis. Some of their creations jut out from the shoreline, perpendicular to the river's flow. Others, like the arch-shaped chevrons, sit in the center of the channel, strategically placed to direct the river's ever-flowing sediment, while others do their directing underwater along river bends.

program," he said. "It's only gotten worse with development. . . We're on this treadmill, trying to keep up with the continual sediment that

Bringing in equipment to dredge (or dig sediment out from) the

river bottom is one option, but unlike the permanent structures, sediment starts to fill back in as soon as the dredging operation is completed.

Safety is the primary reason for redistributing sediment. On river bends, in particular, a buildup of sediment can narrow a passageway to the point that a tow grounds or crashes. The 1980s saw a couple of notable accidents and resulting spills involving tows pushing barge loads of oil, and that led to a particular focus on the safety of river

"We knew we couldn't build on the sandbar where they were laying eggs," Davinroy said. "We didn't have any other choice but to do something in the channel. We conducted research to find what worked and angled them upstream rather than downstream like most."

The weirs dramatically improved tow safety. But they were found to have an unexpected benefit as well. Follow-up studies showed they were a magnet for macro-invertebrates and a favored playground for fish. In one survey, 217 fish were caught around one, representing 12 species. Chevrons similarly were found to attract diverse fish species, even in the middle of the St. Louis harbor. $-\kappa$.s.

Dikes—made of stone, timber piles, concrete or sand-filled geotextile bags and tubes, are used on large rivers to deepen a channel, on smaller tributaries to divert flow and stabilize eroding banks. They are perpendicular to the river flow but vary in height and length

Chevrons are dikes designed in the shape of an arch. Unlike dikes, these are constructed parallel to the river flow, but they similarly use the river's energy to redistribute flow and sediment. They're used to deepen a channel, develop side channels or form sand bars.

Bendway Weirs are submerged rock dikes angled upstream to the flow, designed to widen the navigation channel, mainly in bends or turns. Constructed in 1989 by the Applied River Engineering Center, they've eliminated the need to dredge bends.

retrospective,

MY MISSISSIPPI Nancy L. Purington, 63, Artist, Iowa City

I grew up along the east coast of Iowa on the Mississippi River, spending my days beachcombing for pearls and messages in bottles, any object that would give me a mystery to solve. I never found any pearls, but in 2004 I began assembling items I collected from the

water's edge, and the Mississippi River School of Painting was born. I purchased pearls and assembled them in a series I called "Sticks and Stones, Shells and Pearls." Gluing my first pearl inside a shell where it should be oddly gave me the experience of discovery. The mission was to use the old adage, yet soften it by juxtaposing sticks and stones with shells and pearls as a prayer for balance and harmony, a prized experience on the river.

My current work focuses on the meditative qualities of the Mississippi River, a series called just that: "Meditations on the Mississippi."

The Mississippi River is my muse. Wave patterns, spiral eddies, flotsam and jetsam, cosmic reflections and refractions are subjects of my artistic lexicon. Oil, gold, sticks, stones, shells, pearls, gouache, paper, canvas, wood and indigo are my materials for creating a Mississippi River work of art.



Exodus



What will visitors see this year they maybe haven't seenbefore?

Since the 2008 flood, we have been very busy repairing facilities damaged by high water events. Improvements include the opening of NW 78th Avenue, an access road that was washed out during the 2008 flood. We also have two new boat ramps at Sandpiper and the Marina. We completely modernized our visitor center with new interactive displays and interpretive panels, both through American Recovery and Reinvestment Act of 2009 funds. One really cool display is a map of the entire Saylorville Lake watershed. The touch screen and overhead laser teach about the recreation areas and how the dam functions, and our theater was completely renovated to accommodate 30 people who can listen to a choice of programs about the lake or water safety in surround sound.

How about trail or campground improvements?

At Prairie Flower campground, 63 campsites were hardened with concrete and built to current facility standards. Another fantastic and much anticipated improvement is 13 miles of the Neal Smith Trail, which was widened to 10 feet and completely resurfaced.

FROM THE PROJECT MANAGER Jeff Rose

Operations Project Manager, Saylorville Lake, Des Moines, Iowa

The U.S. Army Corps of Engineers is the nation's largest recreation provider, operating more than 2,500 recreation areas at 463 projects. Among those is scenic Saylorville Lake along the Des Moines River in central Iowa.

What does a typical day involve?

That is one of the great things about my job—every day is different, and you never know what new challenge is going to surface. Saylorville Lake is a 26,000 acre project (20.000 acres of land and 6,000 acres of water) with missions that include flood control, low flow augmentation, recreation, environmental stewardship and water supply. We manage five flood control structures, 532 campsites, 24 group picnic shelters, two beaches, three boat ramps with a total of 12 launch lanes, 200 miles of boundary line and an annual visitation of 1.2 million people. Managing this great resource and meeting the project missions on a day-to-day basis while protecting the natural resources and maintaining our aging infrastructure is a daily challenge. It takes an entire team to meet our mission and (in my humble opinion) Saylorville Lake has the best team in the district.

What's the biggest challenge you've faced?

The 2008 flood. Having never been in a major flood in my nearly 21 year career this was a new experience, and being the person responsible for overseeing the flood operation at the lake was a tremendous challenge. Flood control is our primary mission, and our great staff went into auto pilot and knew what had

the proper notifications to adjacent landowners all the while still continuing to operate our regular programs during a large magnitude flood. Having a dedicated and professional staff to rely upon eased some of the stresses.

to be done to prepare facilities, make

What are you most proud of?

Personally, I am most proud of our four children that my wife and I are raising. On a business side, I am most proud of the opportunities I have been provided during nearly 21 years of federal service. Starting my career as a Park Ranger and working my way up to Operations Project Manager and having the experiences I have been able to achieve in three US-ACE districts is very satisfying. I enjoy coming to work every day.

How can people stay safe during the camping, boating, fishing season?

Safety is extremely important to our recreation mission and particularly water safety. We are constantly looking for new ways to communicate our water safety message about always wearing your life jacket and the dangers of drinking alcohol while boating. I strongly encourage people to always wear their life jacket while boating because in an instant you can find yourself in the water... your life jacket doesn't work if you are not wearing it!-K.S.

DID YOU KNOW? More than 180 invasive species have been introduced to the Great Lakes and connected river systems like the Mississippi. Before boating, help stop the spread by visiting **protectyourwaters.net.**

Mississippi Watershed Initiative group reaching out to 31 states

It may not take a flood to get everyone in the Mississippi River basin to understand how interconnected the river system can be. But the eight-member Mississippi Watershed Initiative Steering Group thinks it presents a timely and compelling illustration and challenge. The group, charged with moving forward an intergenerational working watershed vision, intends to build on the sense of community and broad awareness that rose during this event to communicate the need for a comprehensive management strategy for the system. "Without a reliable flood control system that includes an interconnected system of floodways/spillways, backwater areas, channel improvement, levees/floodwalls, gates, pumps, reservoirs, relief wells, and intensive multi-state water management, for example, the center part of our country would be uninhabitable," noted Stephen Gambrell, Executive Director of the Mississippi River Commission and steering group member.

"This system was pushed to the limit this spring," said group member Michael Reuter, director of The Nature Conservancy's Great Rivers Partnership and North America Freshwater Program. "What do we need to be putting in place to anticipate possibly even bigger floods? This is timely, and it also brings attention to the importance of the way the system functions as a whole."

Some 41 percent of the nation lies within the river's watershed, which also touches 31 states. The group plans to share its working vision for sustainable development with the governors of the affected states and seek their input and support, Reuter said. In addition, it has met with organizers of the Joint Oceans Commission and is considering one aspect of its work as a potential model for the Mississippi Watershed Initiative. The Commission uses specific indicators to track ocean health and then makes recommendations related to policy and management— a technique that Mississippi organizers believe could have merit in a working vision. Such indicators would track socio-economic and environmental goals established by partners in the Initiative. –K.S.



MY MISSISSIPPI

Angie & Ryan Haasch, 32 and 31, teachers, Little Canada, Minn. Married June 20, 2009

Ryan: A lot of people told us ours was the most beautiful wedding they'd ever been to. The ceremony was right on the shore of the river. During it a few guys floated by in tubes, but they were quiet and respectful. We also rented a huge tent for a dance floor, a live band and DJ. Later in the evening the bridesmaids hiked up their dresses and stood up to their knees in the river for some pictures.

Angie: We also had a "sand ceremony." Each of us collected sand from our parts of the river mine from the Power Dam Bridge, and his from a bridge near his home. We let it sit out to dry, then strained it to remove rocks. At the wedding, we took turns pouring it into a glass bottle. It was pretty cool, and we keep that bottle of layered sand in our hutch where we can look at it all the time.

Living in Minneapolis until recently, we often took our 19-month-old, Hazel, for walks along the river. And when we are in Bemidji in the summer, we continue to do all the things we used to do on the river we love: kayaking, tubing with friends on lazy, sunny days, and boat rides whenever we can. The river is vital to us: Our hearts lie there in memories.—S.A.

What's your

Mississippi? Email responses to: editor@ourmississippi.org

Going to bat for threatened bats

Cave closings, other precautions being taken to slow the spread of a disease killing bats in unprecedented numbers.

ost state and federally-owned caves in states bordering the Mississippi River have been closed to slow the spread of a mysterious fungus that many experts say could threaten cave bats to extinction. "The fact is, this is probably the largest wildlife catastrophe in the works in recorded history," claims bat ecologist Dave Redell of the Wisconsin Department

of Natural Resources.

Like many other states, Wisconsin has taken precautions to keep people from inadvertently spreading the spores of what's called "white-nose syndrome" from cave to cave via shoes, clothing or climbing equipment. The state's also enlisting citizen (even tourist) help with a massive survey of bat populations, using hand-held bat detectors that pick up their echo-location calls. The research will help document what a healthy bat population looks like, Redell said, "and after, heaven forbid, they're gone, be able to see where the deficits are."

ecosystem and economy.

"Bats are huge consumers of insects," notes Jeff Huebschman, a University of Wisconsin-Platteville professor and bat researcher, "and we know that some of the things they feed on are agricultural pests." Losing that natural form of pest control could cost the country's farm economy at least \$3 billion a year, and anywhere up to \$53 billion, in added pesticide use and related costs, according to a study recently published in Science Magazine. In Missouri, which has already confirmed the presence of white-nose syndrome, the some 775,000 gray bats annually eat 540 tons of insects (or about 223 billion bugs).

The disease appears as fuzzy white growth around the noses of bats during hibernation, and it spreads quickly since bats cluster together as they sleep. First spotted in New York, it's marched eastward all the way to Oklahoma, into 18 states and four Canadian provinces. Once a bat is infected, the disease has a 95–99 percent mortality rate.

"It is sad we have to go to such extremes, but really it's the only option we have at this point to try to slow the spread of white-nose across North America," said Joe Kath, the endangered species program coordinator for the Illinois Department of Natural Resources.

FOLLOW THE NEWS: fws.gov/whitenosesyndrome





This little brown bat shows visible symptoms of white-nose syndrome— a fuzzy fungus on the muzzle, wings and ear for which there is currently no cure. The fungus appears during hibernation, disrupting a bat's normal patterns.

The state's first bat festival, held in Madison this spring, was similarly designed to draw attention to the bat—in this case ensure appreciation of the much-maligned critters and highlight their importance to both

To slow the spread and buy time for researchers, states like Iowa, Illinois and Missouri have formally closed caves and mines they manage—including the popular Illinois Caverns south of St. Louis and Maquoketa Caves State Park in Iowa—and officials have strongly encouraged private landowners with caves to follow suit. The U.S. Fish and Wildlife Service also unveiled a national management plan last month, one released in conjunction with a national symposium on the disease that brought together 170 of the world's top scientific experts to discuss ways to contain the spread, determine the cause, and hopefully find a cure.

> While there have been no positive confirmations in Illinois yet, he thinks the state had just dodged a temporary bullet.



"I've always stated that it's not a matter of *if* your state is going to get this, it's a matter of *when* your state is going to get this. What we do know from mortality counts is we've already lost probably two million animals. It's a harsh reality to face, but we have to come to grips with the fact that it's a very real possibility that bat species once considered very common throughout North America will in the next 10 years become listed as federally endangered or possibly become totally extinct. It's that serious of an issue." -K.S.

Mississippi, Illinois Rivers act as bat roadmaps. studies show

So little is known about bat flight patterns that a team of Illinois researchers decided to follow a few. And what they found is that humans aren't the only creatures who rely on rivers to avoid getting lost.

Researchers this April attached tiny radio transmitters to the backs of endangered female Indiana bats as they hibernated out of one of the state's largest caves. They released them a handful at a time, and other team members followed—some via helicopter or plane, others by car. sending instant messages to each other as they conducted the intensive "bat hunt."

What they found is that female bats were creatures of habit. Some went a short distance, others a couple hundred miles, likely returning to the same summer maternity roost. But they didn't get there via the shortest route as you might expect, notes Joe Kath, the endangered species program coordinator for the Illinois Department of Natural Resources.

"We were finding that animals were using the Illinois River. In order to get to nesting areas south of the site, they would have to fly several miles west following the river, then follow as the river took an almost 90 degree bend about 20 miles south of the subject site. Animals were doing exactly that. That in itself was interesting."

That rivers are somehow important to bats was similarly discovered in a more general study conducted by the Wisconsin Department of Natural Resources last summer. The study continues this year. The surveys conducted by the DNR and trained citizen volunteers found multiple bat species, in large numbers, along the Mississippi River, likely-they say-because mayfly hatches provide a reliable food source and the river's a navigational aide.

BE A BAT TRACKER

Up for an unusual learning vacation? The Wisconsin Department of Natural Resources is looking for volunteers to work as amateur shiroptologist, helping to track bats acoustically throughout Wisconsin this summer, just after sunset along rivers, lakes, parks and city sidewalks. They also want to know if you see bats, and where, along the Wisconsin side of the Mississippi River. To help, go to:



Archaeologists Unearth Mysteries of the First River City





Danielle Benden sits in the front yard of a Trempealeau, Wis., motel, running her hands over the rim of a pot made about a thousand years ago.

A bit farther downhill, college students kneel in square holes, patiently scraping soil away for more clues. They're looking specifically for clues to why the users of this little red pot came to this spot, then moved away after a brief stay.

Clues to how those cultures lived, worshipped and warred often come unexpectedly from small objects an untrained person might toss aside. Benden takes another piece of a pot rim out of a small box and explains to a couple of curious onlookers how the shape of the pot lip tells her when it was made, to within a few years.

The shiny dark-red slip applied before it was fired also confirms its origins near the American Bottoms, across the Mississippi River from what is now St. Louis. Around 1050 AD, the people living there built the first real city north of Mexico— one today called Cahokia.

That city's population grew quickly to between 10,000 and 20,000, making it one of the largest cities in the world at that time, probably larger than London, Paris or Rome. During the next 300 years, these Cahokians spread their culture up and down the Mississippi— the reason it's now widely referred to as the Mississippian Culture. The people then spread up tributaries over much of the South and Midwest, growing large fields of corn and building settlements sometimes protected by a sturdy stockade. They also built large earthen "platform" mounds, shaped like a pyramid with the top cut off.

Clues that Cahokians settled here would come from the excavated house sites, where darker stains in the soil indicate where the walls stood, burned or cracked rocks mark the hearth. What the interns didn't find was instructive as well. Crews found little or no trash remains, evidence, said Robert "Ernie" Boszhardt, field school instructor for the University of Wisconsin-Baraboo/Sauk County, the settlers were not likely around for long. When Cahokians abandoned a house, after about 10 years, they usually started using it as a trash pit. This settlement, then, may not have been here long enough to build a second generation of houses.

So why did this group leave Cahokia as it was being founded, journey 500 miles upriver with their good dishes in tow, build a village, then stay only a short time?

Interest in finding out was actually sparked some 10 years ago when the St. Paul District of the U.S. Army Corps of Engineers contacted the Mississippi Valley Archeological Center to do

ABOVE LEFT:

Near Trempealeau's Main Street, field school students methodically search for artifacts and other clues in an excavation near where a Mississippian house once stood. $\bot \in \top$: This platform mound commands a spectacular view of Trempealeau and the Mississippi River Valley

some research on a nearby site. Researchers found red-slipped pottery and other artifacts that appeared to be Cahokian, and analysis prompted Benden to speculate about the colony that moved north around 1050.

Was this a group of political exiles? Missionaries? Spies gathering information to bring back to the larger city base, or maybe business people setting up some sort of trading post? All are possibilities so far speculated on.

An even larger mystery, though, is where they went and why. Did they just pick up and go back home or intermarry with locals and give rise to a new culture, or die via disease or warfare? All are questions archaeologists hope to perhaps solve as they continue digging this summer.

shipped in the Trempealeau area for centuries before French explorers arrived in the late 1600s. Cahokian civilization as depicted at the Cahokia Mounds State Historic Site, which offers a volunteer program for those wanting to help chronicle artifacts. The shape and red slip of the pottery fragment tell archaeologists when and where the pot was likely made.

Some schools of thought

about two years around 1054.

The culture's interest in celestial happenings did influence earthly pursuits. In Cahokia, they build "woodhenges," circles of large upright poles in the ground that served as a calendar and means of predicting an upcoming solstice. They also built their villages following a new pattern. While buildings in other Indian villages followed the contours of the land, the Cahokians' lives seemed to reflect the heavens. Most of the platform mounds in Trempealeau on Little Bluff align with the summer solstice, while one ramp aligns with the winter solstice.

Was there something specific about Trempealeau's rocky, scenic bluffs that drew members of this culture? The field school will continue this summer to figure that out. Funded with a grant from the National Science Foundation, professionals and students from the University of Wisconsin-Baraboo/Sauk County and University of Illinois at Urbana-Champaign will continue digging at Trempealeau, this year to determine the settlement's size and whether or not it likely had temples.

Crews will also dig about six miles away on a site at which an indigenous group of Indians lived at about the same time as the Trempealeau/Cahokians. Among other things, they'll look for clues as to whether or not the two groups interacted, fought, traded, intermarried. And perhaps they'll be surprised by something totally unexpected when they unearth even more 950-year-old clues. -R.M.

Dig for (historic) treasure

The field school at and near Trempealeau is only open to university students, but summer field schools based nearby at the University of Wisconsin-La Crosse are open to the public. For information on how you can join, call the Mississippi Valley Archaeology Center at 608-785-8463 or visit its web site: uwlax.edu/mvac

cahokiamounds.org

Timothy R. Pauketat, a professor of anthropology at the University of Illinois at Urbana-Champaign and author of three books on Cahokia, says clues might come from the city's origins. Construction of Cahokia is thought to have perhaps been tied to formation of a new religion inspired by a giant supernova that was visible for

The city was built quickly, and on a grand scale. Nearly 200 mounds punctuated the site, mostly platform mounds that once held buildings like temples, council houses and palatial residences. The biggest, Monks Mound, stood 100 feet high and covered about 15 acres. It towered over the north end of a 50-acre plaza— about the size of 35 football fields.

Perhaps, the birth of this new religion spawned a missionary campaign to spread it up and down the river, sending a mission to Trempealeau, Pauketat speculates.

To learn more about the Cahokians and Mississippian Culture, visit the Cahokia Mounds State Historic Site at Collinsville, Ill., just eight miles east of the Mississippi River and St. Louis. Sixty-eight mounds have been preserved on the 2,200-acre site, which also contains a museum and reconstructed stockade and woodhenge. The site's been designated a United Nations Educational, Scientific and Cultural Organization World Heritage Site due to its significance as a major center of development for prehistoric American Indian culture. It's also a U.S. National Historic Landmark.

The U.S. Army Corps of Engineers may seem an unlikely curator of some of the nation's most prized archaeological artifacts. But under the agency's purview are items from prehistoric days through early explorer and pioneer times.

As part of the National Historic Preservation Act, construction and renovation work on locks and dams. levees or other projects must preserve, or keep intact, significant historic and cultural finds, says Ron Deiss, archaeologist with the Corps' Rock Island district.

Artifacts recovered from excavated sites are curated in state facilities, but they are owned by the federal government. That includes the tens of thousands of artifacts occasionally put on rotational display at various Corps and non-Corps museums as well as related notes and photographs available for research and study.

Some historic treasures can be seen on a tour of the Rock Island District's Clock Tower building, given by reservation only. Those include short films on topics like the history of the locks and dams, properties on the National Register of Historic Places, as well as historic engineering drawings, surveying instruments and photographs. Photography exhibits include samples of the work done by famed Corps photographer Henry Peter Bosse, notable for his photos of lock and dam construction and river landscapes.

The Illinois Waterway Visitor Center, at the Starved Rock Lock and Dam in Ottawa. Illinois, features prehistoric artifacts, as does the Saylorville Lake Visitor's Center near Des Moines, Iowa, open weekends in January and daily starting in April. Even the architecture of some Corps recreation sites has prehistoric significance. The Gull Lake dam site in Northern Minnesota, for example, features 12 complete and several partially buried mounds representative of the Woodland Culture. An interpretive center provides visitor information. Others hold related programming. Mark Twain Lake is offering Primitive Artifact Day June 18 to highlight archaeological finds from across Northeast Missouri.

SUMMER CELEBRATIONS Mississippi River style

River towns know how to throw an interesting party. Here are a few you may want to join.

Floatzilla (pictured above) ROCK ISLAND, ILL.

AUG. 20. 2 P.M. FLOATZILLA.ORG Gather with paddlers on Lake Potter for a second annual attempt to set the Guinness World Record for the largest ever flotilla of kayaks and canoes. At the Quad Cities Paddlesports Festival, visitors can take a paddling lesson, enjoy the live music and hit the paddle-through window of the Burger Boat for an on-water snack.

Turkey Vulture Festival

CORALVILLE LAKE. IOWA CITY, IOWA JUNE 18, 8 A.M.-NOON MVR.USACE.ARMY.MIL/ CORALVILLE Park ranger Terry Escher came up with the idea for this new event while watching some 100 vultures that have adopted the park as a summer **Days** home. Others may deem them HANNIBAL, MO. disgusting, but she sees them as masters of soaring—and nature's perfect garbage bin. "If we didn't have them," she notes, "we'd get a lot of dead things piled up around us." At this fest, mingle with vulture experts, get up close through scopes or join the craft fun.

Steamboat Davs WINONA, MINN.

JUNE 15-20 WINONASTEAMBOAT DAYS.COM River steamboat models will be on display, but all the buzz goes to the human cannonball. Other highlights: carnival, craft show, captain and mate contests and one of the region's largest parades.

Water Ski Days

LAKE CITY, MINN. JUNE 24-26 LAKECITY.ORG/WATERSKI DAYS.HTML Ski shows were invented here, so be ready for lots of onwater tricks and pageantry at this party rounded out with a parade, music, arts and crafts fair, dunk tank and classic car Artist Contest is reason show

National Tom Sawyer

JUNE 30-JULY 4 HANNIBALJAYCEES.ORG A spirit of river adventure's what you'll find here with the Mighty Miss Raft Race, "Tomboy Sawyer" competition and national fence painting contest. Also watch for appearances by Twain himself

World's Largest Catsup **Bottle Festival** COLLINSVILLE, ILL

JULY 10, 10-5 CATSUPBOTTLEFESTIVAL.COM To warrant its own festival, a piece of roadside architecture has to be pretty impressive, and this 70-foot water tower built for the bottlers of Brooks old original rich and tangy catsup is kitsch at is best. Saved from demolition in 1995 by a Catsup Bottle Preservation Group, the massive bottle is now on the National Register of Historic Places.

Elvis Week

MEMPHIS, TENN. AUG. 10-16 FLVIS.COM The Ultimate Elvis Tribute enough to make the trek to this seven-day celebration, but while in town, there's no missing the Elvis-inspired city tours, cruise aboard the Memphis Queen III Riverboat, candlelight vigil or 50s -themed Elvis dance party.

Lumberiack World Cham- Potato Davs Festival pionships HAYWARD, WIS

JULY 29-31 LUMBERJACKWORLD CHAMPIONSHIPS.COM The big purse goes to the professional climbers, choppers and ax swingers who come from around the world to compete in the nation's premier "timber sporting event," launched some 50 years ago, and even speed climb a 90-foot pole. But even amateurs can take a turn at

pole climbing, log rolling, and other events honoring the rich history of the logging industry.

Tua Fest

PORT BYRON, ILL./ LECLAIRE IOWA AUG. 11-13

TUGFEST.COM; TUGFEST.ORG. This tug of war is a literal traffic stopper, with all boat traffic stopped on competition day as 11 teams from each side of the river tug on a 2,400-foot, a spot on the lawn and enjoy 680-pound rope, all hoping to win the traveling trophy, the Alabaster Eagle. Both sides of the river also throw a party, one featuring the crowning of the tug queen.

BARNESVILLE, MINN. AUG. 26-27 POTATODAYS.COM Potatoes in their tastiest forms are featured here as some 17,000 tater lovers come to sample fries, potato pancakes, dumplings, lefse and more. But there's also zany competitions such as mashed potato wrestling and races in picking, peeling, sacking and sculpting.

Laura Ingalls Wilder Days PEPIN, WIS. SEPT. 10-11

LAURADAYS.ORG Bonnets are all the rage at this family-oriented fest based on the early pioneer experience as depicted by hometown author Laura Ingalls Wilder, born in the town's wooden bluffs in 1867. Watch girls compete to be the year's "Laura," check out hand-made quilts, pioneer games and the old-fashioned parade, or grab some old-time fiddling.





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GEOCACHE WITH A GUIDE

462-6979

Knoxville, Iowa: Lake Red Rock, an Army Corps flood control reservoir creating Iowa's largest lake, also holds Geocaching 101 programs throughout the summer, with caches filled with both prizes and water safety information. GPS units are available for check-out as part of the Kids Outdoors program that also loans out disc golf sets, bird exploration packs and more. Find a sample of cache locations by going to geocaching.com and typing in the address: 1105 N. Highway T15, Knoxville, Iowa, 50138. MRV.USACE.ARMY.MIL/REDROCK St. Paul, Minn.: Within the Mississippi National River and Recreation Area around St. Paul, Minn., several sites offer GPS units for use or rental and also special themed caches. East Coon Rapids Dam, for example, offers equipment rental and a series of park geocaches: Fort Snelling State Park and Mill Ruins Park District focus their geocaches on fun facts relating to the region's history. NPS.GOV/MISS

Compete for Cache Cash

The Great River Road Geocaching Event 2011 lets anyone join in the hunt for caches in at least two states in counties along or bordering the 10-state Great River Road. Ten prizes (in addition to the caches) will be given out through the contest, which began May 30 and ends Sept. 5. Geocachers can enter a drawing for every state in which they find a cache and can win various prizes, each with a value of at least \$100. To learn more, go to experiencemississippiriver.com/geocaching.cfm

10 Mississipp

OUR MISSISSIPPI KIDS high-tech treasure hunting

Geocaching is a real-world, outdoor treasure hunting game using GPSenabled devices. Participants navigate to a specific set of GPS coordinates and then attempt to find the geocache (container) hidden at that location. Get your hands on a GPS receiver, then follow these steps to find hidden caches near you.

> for a free membership on geocaching.com. Visit the "Hide & Seek a Cache" nd enter your ZIP code, then hit "search."

any geocache from the list and click on its name. Enter the coordinates of cache into your GPS-enabled device.

ar GPS device to assist you in finding the hidden geocache. It may require to the cache's general vicinity.

logbook in the container and return the geocache to its original location. If ne contains items for trading, feel free to take something and leave somelse of equal value.

to geocaching.com to record your find. (SOURCE: GEOCACHING.COM)

Alton, III.: The National Great Rivers Museum hosts guided geocaching programs each Saturday at 9 a.m. in June, July and August. The free two-hour program includes lessons on how to use a GPS and a guided search for a hidden cache. 877-

Go Bonkers for Birds

How do you learn to see a bird and think or "Eastern meadowlark" or "white-breasted nuthatch" and not just "bird?" Try drawing a few species for fun and coloring in their distinctive features. That's what 5th and 6th graders do each year as part of a Bonkers for Birds program offered annually by the National Great Rivers Museum. More than 1,000 St. Louis-area school children participated this year in a contest that introduces them to both bird watching and scientific research.

Each class is assigned a local bird species, finds the bird in the wild and learns about behavior, range, migration patterns and physical features. The art work of one or two children per class is then selected and included in a museum-created field guide.

Key to the program is the examination of the unique niche each species plays in the ecosystem,

says Erin Hilligoss-Volkmann, a park ranger with the U.S. Army Corps of Engineers, one way to encourage better ecological stewardship.

"There's such a huge variety and biodiversity of birds," she said. "We are hoping people take it from birds to a lot more and develop an interest in the environment."

Get inspired by the creations at: neetingoftherivers org/html/bonkers. html, or for details field guide, call 877-462-6979.



White-breasted Nuthatch by Andre Chandler, Common Nighthawk by Andrew Milloshewski, Green Heron by Jacob Whitten, Downy Woodpecker by Makayla Carter, Wood Duck by Rachel Holtmann



U.S. Army Corps of Engineers, Rock Island PM-A (Dolan), Clock Tower Building P.O. Box 2004 Rock Island, IL 61204-2004

RETURN SERVICE REQUESTED



News Briefs



Interagency cooperation: Ken Barr (LEFT) with blues buddy Bob Clevenstine (Fish and Wildlife Service). This year's Mississippi Valley Blues Festival runs July 1–3 in LeClaire Park on the river bank in Davenport, Iowa. See mvbs.org/fest for details and lineup.

MY MISSISSIPPI

Ken Barr, Environmental Branch Chief, U.S. Army Corps of Engineers, Davenport, Iowa

It's a once-a-year thing for 25 years, when the Blues Fest comes to town right on the banks of the Mississippi River in downtown Davenport, that I hear the music flow. The rest of the year, I'm into rock and roll, but for three days of the year. I become a blues specialist. Friends and family come from Michigan and Wisconsin; 16 to 20 folks descend on Davenport. It's one of our annual routines. My children have not missed a festival, and they're 22 and 18 years. It's just part of what we do.

Because the river runs north and south, you get everything from New Orleans jazz to hard-core Memphis blues to the Chicago blues. Historically, there was music on riverboats. The river and music have always gone together, and it kind of ties the country together

As the environmental branch chief in Rock Island, much of our work is along and in the river, everything from maintaining the 9-foot channel to ecosystem restoration and preserving historic properties. Music and words really help people's appreciation of the river, I think, in a more spiritual sense. Some of the best documentaries have an awesome soundtrack. Something touches people and helps them relate to the river itself. Songs about towboats and songs about floods and songs about beautiful environments, they all blend together.

Leave a trail legacy

The Ozark Trail is looking for volunteers to help build, maintain or promote the 300-mile path through one of the earth's most bio-diverse and beautiful landscapes. The trek from St. Louis to the Arkansas border can take a hiker, biker or horseback rider past mountains, waterfalls, streams, bluffs and caves, offering potential sightings of bobcat, bear, songbirds and bald eagles.



Volunteers can help by joining an outdoor work outing, adopting and maintaining a trail portion, becoming an association member or serving on a board or special committee. OZARKTRAIL.COM

Illinois River Conference scheduled

"The Illinois River: A National Opportunity" is the theme of the 13th Biennial Governor's Conference on the Management of the Illinois River System, scheduled for Oct. 4-6. This year's conference will highlight the turbulent present and future of commercial navigation on the river; the history and future of the Chicago Area Water System as it relates to an ongoing study on Asian carp and other aquatic invasive species; climate change; social effects of various river projects; and more.

The conference also will feature the quarterly meeting of the Illinois River Coordinating Council with a focus on what's been accomplished to date, a River Watch symposium and a conservation bus tour. The Oct. 4 tour, open to the public, will feature the newly created Corps of Engineers Island in the Illinois River near Peoria, Wightman Lake's wildlife viewing area, sustainable local farms and a notable wetland site, REGISTER, CONFERENCES ILLINOIS EDU/IL RIVER



Questions or comment U.S.A.C.E. REGIONAL OUTREACH SPECIALISTS Kevin Bluhm, St. Paul, 651-290-5247 Angela Freyermuth, Rock Island, 309-794-5341 Kristin Kosterman, St. Paul, 651-290-5737 Hilary Markin, Rock Island, 309-794-5730 Laurie Farmer, St. Louis, 314-331-8479 Kimberly Rea, West Alton, 636-899-0050

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CONTRIBUTING WRITERS Susan Ager Bob Anderson Erin Hilligoss-Volkmann Reggie McLeod Steve Rochette This newsletter is a quarterly update of ongoing efforts in the Upper Mississ River Basin and does not necessarily reflect the views of the U.S. Army.

Send story ideas to

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