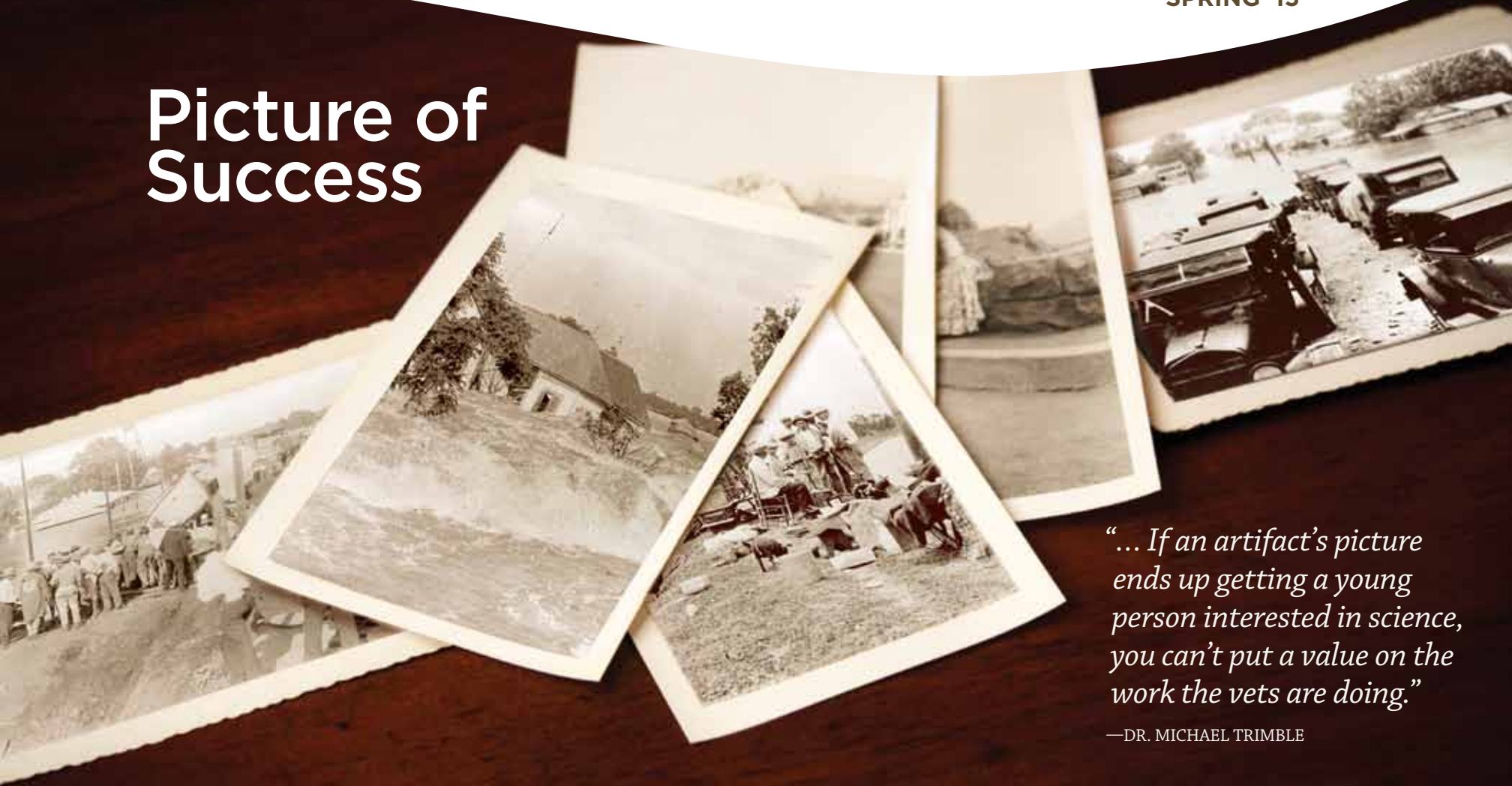


Our Mississippi

PARTNERING TO KEEP
AMERICA'S RIVER GREAT

SPRING '15

Picture of Success



"... If an artifact's picture ends up getting a young person interested in science, you can't put a value on the work the vets are doing."

—DR. MICHAEL TRIMBLE

The Corps-managed Veterans Curation Program has for five years helped bridge the long leap from military to civilian life. Now, veterans are launching the next step, making the artifacts they curate available to the world, via pictures.

For five years now, returning war veterans have been curating, cleaning, photographing and archiving artifacts like pieces of broken pottery, early Native American tools and other treasures uncovered at U.S. Army Corps of Engineers' lock and dam projects and other sites.

It's all part of a program designed to fulfill a goal set out in the days following the U.S. Civil War: caring for those who have borne the battle. Here, that's being done for post-9/11 veterans by offering them employment skills—and much more—in bustling laboratories filled with sophisticated imaging equipment, old photographs and ancient artifacts.

In three labs, including one in St. Louis, the Mandatory Center of Expertise for the Curation and Management of Archaeological Collections oversees veterans hired as temporary archaeologists, and through a mix of teaching and hands-on experience helps them bridge the gap between military service and civilian life.

The curation work is just the beginning of the program process. As the program commemorates its fifth year of pre-

paring veterans for employment, it's expanding the availability of collections to the general public through thousands of images of key artifacts and historic photographs, along with short descriptions written by the veteran technicians.

"It's a win-win-win," says Dr. Michael "Sonny" Trimble, founder and director of the Veterans Curation Program. "Vets learn techniques and take pictures. We take the data and give it to the online service, and it's available to anyone in the world who can access the server and download it. We've gone from doing what Congress requires of us relative to the collections to finding an application in a classroom. That to me is a massive jump. If an artifact's picture ends up getting a young person interested in science, you can't put a value on the work the vets are doing."

Arizona State University provides web hosting on the Digital Archaeological Record, or tDAR, making it possible to access images of collections for use by researchers as well as teachers looking for material to instill a fascination for science, according to Trimble.



 **Our Mississippi** is a quarterly newsletter of the U.S. Army Corps of Engineers about its work in the Mississippi River Basin. It is published in cooperation with other state and federal agencies and other river interests with whom the Corps collaborates and partners toward long-term sustainability of the economic uses and ecological integrity of the river system.

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“Studies have shown archeology to be one of the best science gateway subjects for upper elementary students, who often get turned off by hard sciences with concepts difficult to grasp at that grade level,” Trimble said.

One study tracked students in Glynn County, Ga., comparing future fields of study of students taught basic science with hard sciences vs. those introduced to science via archaeology. The results found a larger percentage of the students in the archaeology group who later majored in a hard science.

“The veterans see themselves contributing to something, and it’s why many went into the military in the first place,” says Trimble. “One of the things they say they most miss besides their comrades is working for a purpose higher than coming to the office every day.”

“Our goal is twofold; we want them to help us catalog our artifacts; more important, we want them to understand they can compete with any other civilian.”

—PROJECT MANAGER KATE MCMAHON

“The artifacts themselves, some remnants of ancient Native American tribes, have also inspired veterans to, in some cases, go on to study history or archeology, or at least continue to be engaged by the work,” said Veterans Curation Program Project Manager Kate McMahon. “Our goal is twofold: we want them to help us catalog our artifacts; more important, we want them to understand they can compete with any other civilian.”

The original bridge between the battlefield and lab was a team of archaeologists supervised by Trimble. The St. Louis District archaeologist directed the program after spending more than two years in the desert, excavating mass graves of Kurds to gather evidence that would eventually support genocide charges against Saddam Hussein. He wanted to help veterans returning home during an economic downturn, those same Army comrades who’d kept him alive in many dangerous locations.

American Recovery and Reinvestment Act funds were used to establish Veterans Curation Program laboratories in Augusta, Ga.; Washington, D.C.; and St. Louis, Mo. Facilities were designed to accommodate persons with disabilities, and laboratories were outfitted with state-of-the-art equipment and software. Flexible hours were established to allow for medical appointments and school, and job- and life-development skills

were woven into the work day as the veterans helped to organize projectile points, historic bottles, pottery, ammunition and more from 165 repositories around the country, including museums and universities.

Since then, 203 veterans have gone through the program; of those, 118 (approximately 70 percent) have gone on to permanent jobs. Another 35 went on to further studies, while 31 are currently working in curation laboratories. Success is only partly related to the technical skills learned, Trimble and McMahon say; most of it is the confidence gained.

The program won’t solve the entire problem of unemployment among returning veterans, but it does serve as an effective model. Since 9/11, more than 2.6 million service members from the country’s all-volunteer force have been

deployed to Iraq, Afghanistan and the Persian Gulf, many returning with physical and emotional scars, Maj. Gen. Michael Wehr, commander of the Corps’ Mississippi Valley Division, said at the program’s fifth anniversary celebration. The unemployment rate among the population has improved since 2011, when it was 12.1 percent among post-9/11 vets; it’s now 7.2 percent but still higher than the general unemployment rate of 5.4 percent. While the Veterans Curation Program can be a model for reducing that rate, he said, it also fulfills a higher purpose of connecting the country to its heritage.

In another speech during the Veterans Curation Program anniversary celebration, Dr. Charles Coleman, Tribal Historic Preservation officer for Thlopthlocco Tribal Town, noted the importance of the efforts to Native American tribes. A tribal elder who served 22 years in the Army, Coleman thanked the warriors for their work and noted that expansion to classroom use will make more Americans aware of their cultural and national heritage.

“Teachers will only teach what they know, and if they don’t know the history of Native Americans, they’re not going to be able to teach it,” Coleman said. “We need to get the information out of the shed and into the head.”—K.S.

ABOVE LEFT: *Alexandria Lab Manager Jasmine Heckman analyzes an artifact with veteran participant Jake Petrie.* RIGHT: *Jo-Ellen Darcy, the Assistant Secretary of the Army (Civil Works), tours the curation laboratory.*

Where are they now?

To date, veterans have been hired by federal agencies including the U.S. Fish and Wildlife Service, Department of Veterans Affairs, the National Archives and Records Administration, U.S. Army Corps of Engineers, U.S. Postal Service and private sector companies including Best Buy, Boeing, Chase Bank, J.P. Morgan Chase, Home Depot, Target, Wells Fargo and others. One started his own photography business, building on skills learned in the program. Many are continuing their education at the associates, bachelors and masters level in fields as varied as biology, philosophy, information technology and public relations. **The program is hiring immediately for the term starting May 4.** To learn more, contact Kate McMahon: 314.331.8007 or catherine.mcmahon@usace.army.mil or go to veteranscurationprogram.org.



Jon Banua, 28, St. Louis, Mo.

As a Military Police Officer in the Army Reserves since 2007, Jon Banua served combat tours in Iraq and Afghanistan and came to the program via the Wounded Warrior Project. The program bridged the gap from military to bartending to full-time work with the Corps in the way it required learning multiple job roles. "It is challenging at times, monotonous at other times, but there is always something new every day." He was subsequently hired by the St. Louis District's Security Office, where he works on regulations, policies and security-related training.

John Davis, 33, Bossier City, La.

John served as infantry in the Marine Corps from 2000 to 2004 and was deployed to Iraq. His time as laboratory technician gave him experience with spreadsheets and resume and networking help. "They don't just treat you like employees," he said. "All of the VCP staff truly want you to succeed, and they push everyone to help them do so." He's now working as a Cartographic Technician in the St. Louis District and is part of an Unmanned Aerial Systems (UAS) team performing aerial surveying and mapping.

George Frattarelli, 39, Clarksville, Tenn.

This former line medic was medically retired from the service and says he not only got the chance to renew his confidence and skills after a long break from the workforce, he got to indulge his love of history. "The opportunity to hold and preserve the work product of prehistoric and historic artifacts, then that of the engineers and archaeologist who excavated everything really peaked my interest," he said. "I seriously thought the VCP was too good to be true." He now works as an Administrative Assistant in the St. Louis District's Project Management Branch.

Cory Tabbert, 33, Kenosha, Wisc.

Cory served in the Army Reserves from 2000 to 2012 and was deployed to Iraq during the initial invasion in 2003. Those who haven't experienced it might find it hard to understand the gap between military service and civilian life, but the program helped to bridge that for him, leading to a current job doing micro modeling of the Mississippi River at the Corps while pursuing an engineering degree. "Kate and Andrea made sure that whenever any vet left the program they were given the proper tools to succeed," he said.

Andrea Antonelli, 33, Newburgh, New York

Andrea served in Kuwait as an ammunition specialist, then entered the program in May 2014 to learn the procedures for archives and artifacts. She passed the technical digital imaging systems exam and then became one of several graduates to get hired by the Army Corps of Engineers on a full-time basis. She is now an administrative assistant in the St. Louis District, and credits program staff for that. "I've learned so much about federal employment," she said, "and the networking really helped."

MEET SOME VETERANS CURATION PROGRAM GRADUATES

Corps archeologist oversees restoration of Arlington National Cemetery gates

DR. MICHAEL TRIMBLE, chief of the Curation and Archives Analysis Branch of the U.S. Army Corps of Engineers in St. Louis, never knows what will turn up over the course of his work restoring and curating ancient pieces of pottery and other treasures.

But rarely does even he get the chance to oversee restoration of an American military icon—in this case, two of the original sandstone gates of Arlington National Cemetery, covered with graffiti and long forgotten in the surrounding woods. Those gates, he's learned, were originally erected as part of the facade of the U.S. War Department, well before the Civil War. When that building was torn down, they were moved to Arlington, where they for a century anchored the cemetery's east entrance.

"When they tore the building down in 1879, General Montgomery Meigs, an engineer, wrote a letter to Secretary of War Stanton, saying we ought to save the columns and send them to our new national cemetery," Trimble said.

When the cemetery expansion widened the roads in the 1970s, the original gates were removed. And over the years, he speculates, someone forgot about those stone columns. When they were recently found in the woods, his team was called in to do research; that showed six columns made between 1818 and 1820 by the same Scottish-Irish stone masons who carved the White House columns in 1818. Assessment techniques showed the columns to be basically intact.

"We're cleaning them with the goal of re-erecting them exactly how they were in 1879," Trimble said. "What could be cooler than putting up two of the original three entrances to Arlington Cemetery?"



Left, Dr. Michael Trimble toils on a high-profile dig in the deserts of Iraq. Right: Work he's overseeing to restore the original gates at Arlington National Cemetery.



Memphis is jazzing up its riverfront

When Memphis held an international design competition for the chance to remake its Mississippi riverfront, suggestions poured in from 20 countries and across the United States. Some proposed a distinctively Tennessee version of Paris' Eiffel tower or the St. Louis arch—the city's own recognizable icon.

But the winning design firm, based in Buenos Aires, Argentina, knew where all eyes should be focused: on the Mississippi River itself, on America's version of the Nile or Amazon, says Benny Lendermon III, president of the Riverfront Development Corporation. That's the public/private non-profit partnership that is overseeing development and operation of the city waterfront.

The project centerpiece was kept simple in concept, offering better access to river's edge and not blocking the view. The engineering and design of the \$43.6 million project was anything but simple, though. To accommodate a variation of as much as 57 feet in water level over the course of a single year, designers created stair-stepping terraces designed to flood. At the top, an overlook like a real ship's bow jets out, creating a true feel of being on a ship when water's high, Lendermon said.

The going with the flow theme is carried through all of the Beale Street Landing project unveiled last summer. A green roof resembling a hillside tops the publicly-run riverfront restaurant that serves items like a "riverboat gambler" ribeye sandwich and a Memphis peach pie. And the roof's grass-covered hill serves dual purpose as wide-lawned seating for families and couples at events like the seasonal outdoor film series.

In the next phase of the ambitious project, history is being embraced in a dramatic way with the restoration of the nation's last remaining cobblestone landing, one that is three football fields in length. Interpretive panels, now in a final draft stage, describe how thousands of boats once moored to the still remaining cast-iron moorings and how the once muddy landing—at one time the nation's largest inland cotton port—was paved with stones so wagon wheels and animal hooves wouldn't get bogged down in wet clay and sand. No plans call for live mules to haul tourists as they oft hauled cotton, but there are visions for salsa dancing on docks and a winter skating rink overlooking the river.

"Memphis came from the river," says Lendermon. "We're here because the bluffs are here. Our location came from the river, our economy came from the river, our music came from the river, and our food germinated from the river."

Memphis Mayor, AC Wharton, also serves as Co-Chair of the Mississippi River Cities & Towns Initiative (MRCTI) which is creating synergy for waterfront development and renewal in many cities on the River. And Memphis isn't the only city turning increasingly to its river roots, via development or celebration of history and place, says Colin Wellenkamp, director of the Mississippi

River Cities and Towns Initiative, a branch of the Northeast-Midwest Institute that pulls together mayors as a voice on river policy. Member cities are increasingly turning to the river as the quintessential "placemaking" asset, he said.

Few other places in the country can boast such an impressive cultural and heritage footprint, this centerpiece of global trade, recreation, agricultural, energy generation, navigation and quality of life, he said. There's also plenty to celebrate as cities like Natchez and New Orleans prepare for 300th anniversaries and states including Mississippi, Illinois and Missouri for their bicentennials over the next few years.

"It really is turning into this very valuable asset that cities are rediscovering and planning renaissances around," he said of the river. "As talk about how we attract investment, the river is the centerpiece for why to come."

River attitude turnaround

No one can blame Memphis—and many other river cities—for at one time turning from the river, not when the river's unpredictability and sheer force has brought flooding, drowning, disease. Long-time Memphis resident Hampton Sides captured the sentiments of many long-time river dwellers when, in *Outside* magazine he wrote about his trepidation about facing the Mississippi in a pending paddling adventure.

"The riverfront, I grew up believing, was a god-awful unsavory place... Historically, the Mississippi had always brought bad tidings to Memphis—yellow fever epidemics, another boll weevil blight, news of the latest stock-market crash, or the twin pestilences of Sherman and Grant. Surely it was the height of idiocy to mess with such a groove-worn fate."

While some cities struggle with too little public land on the waterfront, Memphis had almost too much, Lendermon notes, and yet almost no access to the river itself. Industry monopolized the riverfront, but commerce and residential developments had over the years inched away from the river's "dangers." The non-profit's first step, after studying successful river cities around the country, was to build river connections, in some case via steps down steep bluffs. New grass was planted in riverfront parks, Mud Island River Park access was for the first time offered for free, a partnership with a local professional sports team brought exercise stations into Tom Lee Park, and with all the caretaking came increasing use. The cobblestone restoration, which will include a river-bottom hunt for old cobblestones that have fallen in, will add beauty and walking safety. The city is revisiting its master plan, but the vision "reunite the city with the river" is off to a good start, if participation is any indication, Lendermon said. He notes as just one example an interactive water feature at Beale Street Landing.

"We expected 20–30 kids at a time, and we're getting 100–150 consistently. At 8 a.m., there'll be kids standing there waiting for it." —K.S.

RIVER CITY MAYORS

set 2015 legislative agenda policy platform

Mayors from all 10 Mississippi River states gathered in Washington, D.C., March 17-19, urging the 114th Congress and President Obama's administration, through several high-profile meetings, to make the Mississippi River a legislative priority.

The attending mayors hosted national leaders from segments like transportation, the environment and commerce. They even co-hosted one congressional dinner with the Kingdom of the Netherlands, a world leader in creating sustainable solutions for communities located near water. The mayors additionally met with the Mississippi River Caucus. The caucus formation is one of the key accomplishments so far of their Mississippi River Cities and Towns Initiative (MRCTI).

This year's legislative priorities, unveiled at the meetings, include:

- Support for trails, byways and bridges in a new Transportation Bill
- Funding of a flexible USDA Natural Resources Conservation Service, Watershed and Flood Prevention "Landscape Resiliency" initiative
- Prohibition of coal ash deposition within floodplains
- Funding of key economic development priorities underlying a sustainable river economy
- Support for America's Marine Highway Grant Program (\$10 million)
- Full funding of the Army Corps' Civil Works Budget (\$5.5 billion)
- Support for the Section 106 Water Pollution Control Grants Program (\$249.2 million)
- Drinking Water and Clean Water State Revolving Funds (\$2.35 billion)
- Pre-Disaster Mitigation Program (\$200 million)

"We've got to keep our transportation highway open, to still allow growth and development."

—LARRY BROWN, MAYOR OF NATCHEZ, MISS.

Mayor Jo Anne Smiley of Clarksville, Mo., says the coalition provides a strong voice to even the small cities on the river, though the mayors all act on behalf of the broader needs of the river and the many who depend upon it, rather than their individual projects. "I think the mission will be heard by those who will assist in making a positive difference in the maintenance, management and improvement of the Mississippi River," she said.

Natchez Mayor Larry Brown hosted the meeting focused around one of the mayoral group's key initiatives—encourag-

ing container-on-vessel transportation on the Mississippi River. The use of the larger container barges is expected to increase dramatically with the expansion of the Panama Canal, and river city mayors see strong potential in more efficiently moving cargo up and down the Mississippi. That issue was also on the agenda in a meeting with top officials of the U.S. Army Corps of Engineers because making navigation by these and other barges feasible will require port and lock improvements, Brown says, and additional funding for infrastructure managed by the Corps.

"We are operating the largest commercial highway in the world with infrastructure on average 75 years old, some of it older than that," Brown said. "We've got to keep our transportation highway open, to still allow growth and development."

Roy Buol, Mayor of Dubuque, Iowa, and organization co-chair, added: "Through MRCTI, the river city mayors have been able to articulate the value of the Mississippi River and the benefits cities derive from being located on the river's banks. This includes communicating the importance of investing in the River's commercial waterways infrastructure. This is why we hosted a meeting with U.S. Department of Transportation Secretary Anthony Foxx in Washington, including major shippers and others, toward the goal of returning container movement to the waterway."

The group's goal is to have every mayor along the Mississippi River as a member, backed by the bicameral caucus. Organized by the Northeast-Midwest Institute and funded by the Walton Family Foundation as well as the McKnight Foundation, the initiative's chief goal is to bring national attention

back to the Mississippi River and cement the regional cooperation needed to make it sustainable.

"This is the most powerful and most comprehensive political group I've been engaged in my whole political life," Mayor Brown said. "We've been able to touch the pulse of leadership up and down the river in areas like invasive species, pollution and the environment, river commerce, navigation hazards and more. We still work independently on our own city projects, but the cities work as a group for the river." —K.S.



Can innovations save this river city?

Clarksville Mayor Jo Anne Smiley thinks so.

There are obvious advantages to having one of the few main streets that sits just a stone's throw from the Mississippi River's banks. Artists and other creative types fill historic storefronts with art inspired by the scenic beauty. Visitors, when not shopping, can sit on terraced banks almost on the river's floor as dozens of eagles hover overhead, or hundreds of white pelicans pass along the river flyway.

But there are challenges, too, when you've embraced the Mississippi as intimately as this town wedged between the river and a bluff. Clarksville, Mo., has been named a national historic district and the state's most outstanding locale for nature tourism. But it has struggled through a series of record flood years. While other cities are seeking to build up their waterfronts, Mayor Jo Anne Smiley says she's seeking to save hers through an innovative flood defense system that can be raised or lowered—a system that both keeps the river view intact and offers essential protection in high water times.

"Clarksville will be 200 years old in 2017, and the close proximity of the business district to the river is a major challenge and major blessing all at the same time," Smiley said. "The storefronts are all but on the water, and over these 200 years, the river has served even as a market if you will... boats filled with fish. This town has survived the numerous flooding experiences, without losing life or property. We've fought to build whatever kind of defense we had to have to save it. But flooding events are coming more often, and they are greater."

The town is seeking the \$3.5 million in funding needed to purchase an easy-up wall system created by a German company that built one along the banks of the Danube and has had similar success in the United States. The system's foundation would be built into the ground and stored in a pod until needed and then easily raised along a five-block, 1,400-foot stretch. She's worked with the Corps of Engineers to develop specs and get needed permits and is now working on the fundraising piece.

Mayor Smiley also serves on the Executive Committee of the Mississippi River Cities & Towns, which cites her leadership in pushing for non-permanent structural solutions to flooding as well as a fully funded Pre-Disaster Mitigation Grant Program.

"I've been mayor for 10 years, and during that we've had six of highest flood level events in history," she said. "If we're going to save the town, it's not a matter of 'if.' It is a matter of this is something we're going to have to do." —K.S.



2015: YEAR OF FISHING
Make this the year to
drop a line in the
Mighty Mississippi

How do you encourage people to experience the Mississippi River in new ways? You make it easier. And you make a year of it.

There was the 2012 Summer of Paddling, 2013's Year of Biking, 2014's Year of Geotourism and now the 2015 Year of Fishing. The Mississippi River Connections Collaborative is continuing its annual focus on promoting recreational activities along the Mississippi River corridor.



The collaborative consists of a formal partnership between the National Park Service, U.S. Fish and Wildlife Service, Mississippi River Trail Inc. and Mississippi River Parkway Commission and active collaboration with agencies like the U.S. Army Corps of Engineers. It has this year come together to develop, host and make it easy to find information about fishing-related events along the Mississippi River. The goal: introduce or renew a passion for fishing or maybe just connect people to the river, encourage stewardship and share lessons on river safety.

The year's fishing goals differ slightly from past events, says Kim Rea, recreation manager at the U.S. Army Corps of Engineers' St. Louis District Rivers Project Office, a collaborative partner. Change: The Summer of Paddling was held as paddling on the river was increasing and trails were being developed to meet the increased need. 2012 was also the year that the Department of Interior launched the National Water Trail Program. Fishing, on the other hand, has experienced a slight decline in participation, especially among young people.

"Traditional sports like fishing, hunting, camping are not getting passed down as readily as they used to be in past generations," she said. "Also, a lot of messages can be shared from a conservation standpoint. You have the opportunity to educate about invasive species, the environment and water safety. Fishing is the hook that captures visitor attention and gives us the opportunity to get them engaged with the river."

There's already been a large family-focused ice fishing festival on the upper river. Others on the site include a Youth Fishing Day in Anada, Mo., a family fishing fair in Grafton, Ill. Events will for the most part be free and provide equipment and instruction. Down the road, watch for a year of birding, a year of hiking and other activities on a list some 20 ideas and growing, says Rory Robinson, an outdoor recreation planner with the National Park Service. In the meantime, go toss in a line.

"I have every reason to believe this year will be very similar to the first go-around," he said, "that there'll be 300 to 400 events and new signature events, from the source of the river to its mouth." —K.S.

Find the events:
mr-cc.org



FISHING THE MIGHTY MISSISSIPPI 200 species, and counting

Variety is the hallmark of Mississippi River fishing. That's true, whether you're dipping a line in the placid headwaters or anywhere along its 2,320-mile route to the Gulf of Mexico.



Northern Pike

Upper

Lake Itasca, where the river begins, is a true fisherman's lake; no motorboats are allowed. On the east leg of the three-legged lake, look for northern pike and bass. Where the three arms meet, fish for walleye. But as on other parts of the river, other species are present: rainbow trout, crappie and bullhead. If youngsters are along, they should use worms—almost a guarantee to catch the pumpkinseed sunfish, a 6- to 8-inch-long fish.

On the mainstem of the Mississippi, a good place to try the sport is the Clements Fishing Barge (CLEMENTSFISHING.COM), located just below Lock and Dam 8 near Genoa, Wisconsin. The adjacent Upper Mississippi National Wildlife Refuge boasts more than 130 species of fish including the common bluegill, crappie, walleye and sauger which prefer deeper pools of water.



Paddlefish

Upper and Middle

While navigation locks and dams can create potentially tricky fishing conditions (always observe posted warnings), they offer interesting opportunities, too. Late spring brings great fishing for walleye, sauger and paddlefish just below the locks and dams; predator fish concentrate because of the easy meals trapped here. Wing dams and jetties are also favored locations for fishing experts for the way walleye, sauger, catfish, white bass and freshwater drum inhabit them for food and shelter.



Catfish

Middle

Catfish rule here. Two fishermen landed a record 130-pounder here in 2010. (Skipjack herring heads are said to be the preferable bait). Fishing from banks in backwaters is a good way to catch bullhead in shallow waters off the middle section of the Mississippi; those fishing from boats can expect to haul in carp. Some fishing meccas include the Jefferson Barracks Side Channel, just south of the U.S. Hwy. 50 bridge or about 11 miles south of St. Louis' Gateway Arch; the Fort Chartres side channel; and the town of Commerce, Missouri, on the east side of Burnham Island.

Lower

Check the interactive map of fishing ramps on the sites of many state wildlife and fisheries departments or that of the U.S. Fish and Wildlife Service. The Lower Mississippi River Conservation Committee (LMRCC.ORG) has also compiled a comprehensive guide for fishing the lower river, highlighting best locations by species including crappie, bluegill, catfish, common carp, freshwater drum, largemouth bass, white bass and striped bass. Launch from Venice, Louisiana, near river's end, to find freshwater fish like bass—or saltwater fish like redfish, speckled trout and flounder.



Freshwater Drum

Desoto meets *National Geographic*

All-encompassing Geotourism website adds ease to Mississippi River exploration

Visitors to the Mississippi River might head to New Orleans for its food scene or Mardi Gras parades, hit Natchez for the gracious plantation homes. Thousands find Mark Twain's childhood home for a visit each year, while others flock to eagle overlooks on the river's northern bluffs.

But finding a sense of the river's iconic story, its people and places, or to plan a whole-river trip centered around themes like food or fishing or Civil War sites hasn't been easy. Soon that will change.

The National Geographic Society has partnered with the Mississippi River Connections Collaborative on a massive Geotourism MapGuide website, focused wholly on America's Great River. Similar guides have been published for landmark destinations like Yellowstone, California's Redwood Coast and the Vilcanota Valley of Peru. But the Mississippi River's site will be the largest, steering travelers to locations best capturing the river's essence while branding the river as a world-class tourism destination.

When National Geographic staffers head to other sites around the world already, they can't say "Mississippi River" without instant recognition, says Rory Robinson, outdoor recreation planner with the National Park Service and a key project coordinator. "It truly is an American icon," he said, "maybe in some way's America's biggest icon."

And yet, visitor information—and sometimes cultures themselves—have been fragmented. Someone living in St. Paul may feel they have nothing in common with a resident of New Orleans, while they in a sense share the same river story. That the site will market the river as a whole is among the most exciting facets for Terry Eastin, one of the collaborative's founding members. While working as executive director of the Mississippi River Trail Inc., a non-profit working to create a 3,000-mile trail system as a way to connect the towns along the Mississippi, she traveled its length.



That customs and norms varied as much as scenery was a great thing. That no one looked beyond the borders of their given community wasn't as great.

As the site becomes live late this spring, a visitor from Australia—or one from Arkansas—can figure out where to head to get the true river experience, knowing sites large and small have been fully vetted by National Geographic staffers and a committee familiar with river history, culture and tourism. The site starts as a blank slate, with regions asked to nominate their most special locales, and not always the most obvious ones. In Alton, for example, the site may include the Corps' impressive National Great Rivers Museum, Robinson said, but also Fast Eddie's restaurant and the story behind its cajun-style Hot Chick on a Stick.

National Geographic defines Geotourism as "tourism that sustains or enhances the geographic character of a place, its environment, culture, aesthetics, heritage and the well-being of its residents. That encompasses culture and heritage, history, food, nature, the outdoors, water, music and arts. It's a way to promote the region via its people, places and stories"—stories now being collected from headwaters to the Gulf.

The collaborative and its Geotourism team knows the river, as it brings together the National Park Service, the U.S. Fish and Wildlife Service, the Mississippi River Parkway Commission and that group's Great River Road, the Mississippi River Trail Inc., the U.S. Army Corps of Engineers and more. But National Geographic brings a new level of exposure and credibility to the table as well as its sophisticated site's ability to share information via smartphones and curate a trip by theme.

"National Geographic is an international brand, and people trust the brand, seek out the brand," says geotourism team member Kim Rea, recreation manager at the Corps' Rivers Project Office in West Alton, Mo.

"When people are looking for places to go, this is going to lift the river corridor up on a person's list. This project highlights the importance of the Mississippi River. Working with National Geographic, we can provide information that can capture the unique and authentic Mississippi River for those visiting."



MY MISSISSIPPI

Nathan Beane, 32, Research Forester, U.S. Army Engineer Research and Development Center (ERDC), Environmental Laboratory

"I've stalked wild boar from the ground in the Delta National Forest and hunted black bear from high above Rhododendron thickets in West Virginia. These adrenaline-fueled adventures fail in comparison to alligator hunting in Mississippi's swamps at night. I was introduced to the sport as a guest on a moonlit hunt just north of Vicksburg in 2012. There, one big alligator almost flipped our undersized 14-foot jon boat—undersized is an understatement—and I became as hooked as our quarry. Since then, planning for and hunting alligators has become a summertime ritual. The gator's elusiveness and nocturnal nature make it even more mysterious and intimidating. As they say, it's the quiet ones that are the most deadly. And to make matters worse, these algae-covered beasts will eat almost anything—fish and small mammals, Labrador retrievers and even humans.

"Although you can legally pursue gators during daylight hours, most hunters choose to chase them during the night hours as they are most active then. Plus, it adds to the excitement. The swamp at night is a fantastic venue for alligator hunting. It's an assortment of excitement, stillness, wild noises and eeriness that can't be described ... The heron rookeries, disturbed by a passing boat, create a perfect nighttime soundtrack that I could listen to on repeat for hours. The views aren't too shabby either, especially if there is a full moon."

Dr. Beane credits his grandmother for first getting him into the woods and teaching him to 'not miss the forest for the trees,' and that would later become a career focus. His work takes him across the country providing research support to both military and civil projects for the U.S. Army, including habitat management, forest community dynamics, and riparian forest research. In his free time, Beane enjoys gardening, beekeeping, home brewing, hunting and fishing, and also serves as outdoor editor for the Mississippi lifestyle and culture magazine, The 'Sip (THESIPMAG.COM). This was excerpted from his summer 2014 article.



RIVER POWER

PICTURED: Red Rock Hydroelectric Project

Companies take new look at Mississippi River hydropower

HUMANS HAVE BEEN HARNESSING the power of moving water since antiquity, yet this clean and renewable source of energy is nowhere close to tapped out in the Mississippi River system. Spurred by state and federal tax incentives and efforts to reduce carbon emissions, power companies have been taking a new look at the river and its tributaries.

Construction is underway to retrofit a power generating station to an Army Corps dam on the Des Moines River near Pella, Iowa. In cooperation with the Corps, the \$260 million Red Rock Hydroelectric Project is being built by Missouri River Energy Services, which supplies wholesale electricity to 61 communities in Iowa, Minnesota, North Dakota and South Dakota. When completed in 2018, the facility will provide 36.4 megawatts of electricity, enough to power 18,000 homes.

“There’s a lot of pride in this,” said Corps project engineer Anthony Heddlesten. “It’ll be the second biggest hydroelectric facility in Iowa, powering almost the whole county with clean energy.”

RED ROCK PROJECT AT A GLANCE

Location: Des Moines River, about 2.5 miles southwest of Pella, Iowa

Lake Red Rock: Iowa’s largest lake with 15,000 acres of water

Dam: 6,260 feet long 110 feet high, completed in 1969 by Army Corps

Generation capacity: generally 36 MW, but up to 55 MW when water is plentiful; when operational, it’ll be the second largest hydropower facility in Iowa.

For more: redrockhydroproject.com

Worldwide, hydropower represents 19 percent of total energy production, but it represents only 7 percent of total energy production in the United States, according to the U.S. Geological Survey. More than half of U.S. hydropower is produced in Washington, Oregon and California.

“Most of the federal works projects were built in the ‘30s, ‘40s, ‘50s, ‘60s,” said Dennis Norris, chief of operations for the Corps’ Mississippi Valley Division. “In the west, they were looking for water supply more than anything else. In this part of the country, Congress was focused more on moving of commerce and flood control.”

Most of the Corps’ existing hydropower plants in the Mississippi Valley division are at locks and dams along the Arkansas River. In a 2013 report, the

Corps identified 50 sites across the division that did not have a current Federal Energy Regulatory Commission license for hydroelectricity yet were evaluated as feasible for producing hydropower. The economic viability, however, fluctuates not with water levels but with energy prices.

“A few years ago, when the cost of petroleum was really high, there was a renewed interest in hydropower across the country, even into putting turbines in the Mississippi River,” Norris said. “Quite frankly, those projects are no longer as viable with natural gas prices being what they are.”

Still, some interest remains, and Norris said the Corps is working with several companies that hold permits and are currently conducting preliminary feasibility studies.

Uncertainty about changing federal policies is a bigger obstacle for future projects for the company building the Red Rock facility, said Joni Livingston, director of member services. The company has put on hold plans to develop two other hydropower projects along the river pending finalization of the Environmental Protection Agency’s Clean Power Plan.

“We don’t expect natural gas prices to stay that low in the future,” Livingston said. “Hydropower is a good fit for us. The Red Rock facility is a base load plant, on all year, and we can get extra capacity out of it during peak times if the water flow is high. But the proposed [EPA] rules are causing a lot of uncertainty as to what will be counted as a carbon credit. We have a coal generating plant in Wyoming, and we might not be able to count our renewable energy in other states against that coal plant, so we would have to build a future facility in Wyoming.”

Most of the cost of hydropower occurs with construction. Retrofitting the dam at Red Rock requires building an intake structure upstream from the dam and a power facility downstream, then drilling a hole through the dam to install the penstocks, sluice gates that allow water to flow to the power turbines. The company also built new recreational facilities, including a new bike trail, picnic areas, and a fish cleaning station, to enable the public to continue to enjoy the popular Red Rock Lake area during construction.

“Hydroplants are capital intensive on the front end, but over the life of the project they are very cost effective because they last,” Livingston said. “We say the life of this project is 50 years, but in reality the turbines last almost 100 years. Plus, the fuel is free.”

That’s one reason why, eventually, more hydropower facilities will likely be built at locks and dams in the Mississippi system.

“It’s a great way to get another use out of water that is managed for flood control, navigation or water supply,” Norris said. “If you can add on to that use getting power out of it, that’s a win-win all the way around.” —S.F.

Rare sturgeon find offers evidence of recovery

You'll know them by the rows of bony plates that line their bodies, body armor that has decked this flat-snouted species for some 70 million years. That's if you can find one.

Major changes in the Missouri and Mississippi rivers, coupled with the popularity of their eggs for the caviar market, nearly rendered these fascinating fish as extinct as their ancient relatives. But the identification of two larval fish in the Missouri River as pallid sturgeon is offering evidence of possible success in restoring a breeding population of this federally endangered species there—success already occurring in the more rapidly moving Lower Mississippi.

Joe Bonnaeu, chief of threatened and endangered species for the Army Corps division overseeing the Missouri, says the discovery indicates evidence of success of an ambitious reintroduction program. Resource specialists in both the Missouri and Mississippi also are for the first time starting to coordinate efforts to track sturgeon populations, efforts launched with a March meeting in Kansas City. Coordination only makes sense given evidence the sturgeon populations in the two rivers are interacting, says Dr. Jack Killgore, a research fisheries biologist with the Corps' Engineer Research and Development Center in Vicksburg, Miss.

"We have recaptured fish tagged in the Missouri in the Lower Mississippi, and Missouri folks have recaptured pallid sturgeon tagged in the Lower Mississippi 1000 miles up in Missouri four years after we released them," he said, noting that's the longest unobstructed aquatic corridor in the United States. "We know the populations are interacting, we just don't know the extent to which at this point."

Distinguishing pallid from shovelnose sturgeon continues to be a difficult task in the Mississippi River, Killgore said. Further studies are being conducted on using genetics and traditional taxonomic methods to distinguish the species from its more common cousin, the shovelnose.

"We're seeing recovery and stability in the population, finally," he said. "But it takes 10 to 15 years for females to reach sexual maturity, and they only spawn once every two to three years. You can understand why it takes so long for them to recover." —K.S.



U.S. Army Corps sets sustainability goals

To help reduce sea level rise via climate change and thereby help reduce the frequency and severity of coastal flooding, the U.S. Army Corps of Engineers is encouraging hydropower and other green energy projects. It has also pledged to:

- Increase renewable electricity consumption to 20 percent of agency total electricity consumption by fiscal year 2020.
- Reduce greenhouse gas emission by 23.1 percent by the same year.
- Reduce vehicle petroleum consumption by 20 percent.
- Carry out President Obama's "Performance Contracting Challenge," which helps accelerate progress on energy and water conservation and greenhouse gas reduction.

Leading the U.S. Army in similar initiatives, the Corps has received three President Green Gov awards, two Sustainability Hero awards and a Climate Champion award.

"We can't just keep replacing our damaged berms, sea walls and bridges, and paying out big disaster relief and flood insurance claims," said Jo Ellen Darcy, the Assistant Secretary of the Army for Civil Works. "We have to change the way we do business and plan for the future." —K.S.

MY MISSISSIPPI

Patricia R. Hemphill, Deputy for Programs and Project Management (DPM), Vicksburg District, U.S. Army Corps of Engineers

"I grew up in Vicksburg, probably a mile east of the river. In my childhood when the water would be high in the spring we would play in the backwaters, fishing and passing time. My father was born during the 1927 flood, which I learned from his mother, because he was killed when I was four months old. His parents would adopt me and raise me, and my middle name, Rose, is for his mother.

"I still live at the address where my birth mother left me when she was 17 years old, on the same street my father grew up on and where I was born. She would call occasionally, but circumstances prevented her from being involved in my raising. I ended up doing extremely well, but none of this would be possible without God. My grandparents instilled in me hard work, honest work, that you do the best you can, you never cheat, you never steal. They never graduated even junior high school but told me, you go to school, you graduate, you get a job, you take care of yourself.

"When I was in high school two men changed my life. One told me I should think about working for the Corps; I didn't know what it was. Another said I should be an engineer; I had wanted to be a computer scientist. I ended up working for the Corps, starting in high school and throughout college, and got through college on scholarships and my Corps salary.

"I ended up becoming a civil engineer, a hydraulics engineer, which is interesting because that fascinated me as a child. Whenever it rained I would go out and watch the water, tracking it, where it went. I was the first black female civil engineer in the Vicksburg district and now I'm the only African-American woman DPM in the Corps.

"How does that make me feel? I feel privileged, blessed, humble, and I like being the first—but I don't want to be the last. And I don't want to be the only one."



OUR MISSISSIPPI KIDS

What do plants and playing cards have in common? Shapes! Draw a line from each plant to the card suit that matches the shape of its leaf.

Red Maple

Corydalis

Redbud

White Clover

Poplar

Basswood

4 ♠ HASTATE

4 ♦ RHOMBOID

4 ♣ TRIFOLIATE

4 ♥ CORDATE

Crabapple

Convolvulus

Wild Ginger

Cherry

Ivy

Orache

CONCEPT: QUAD CITIES BOTANICAL CENTER. PLANT ILLUSTRATIONS: DIANE KOLAK.

Every 4th grader to a park



To learn how to receive free admission and find outdoor areas and youth programs in your area or target vacation destination, go to: nationalparks.org

It's maybe a bit ironic that transportation has been named a key reason that young people and their families aren't spending time in the great outdoors—in or along national parks, forests, water trails, forest and wildlife refuges. Participation is especially low in low-income rural and urban communities.

Now for the 2015-16 school year and beyond, those barriers will be removed for fourth graders and their families and their classroom teachers. It's part of a Presidentially-led effort to better connect children with nature at a particularly impressionable age. It also supports research showing multiple child development benefits from time spent outdoors.

The program launch coincides with the 100th year anniversary of the establishment of the country's national park program. The "Every Kid in a Park" initiative will provide free passes to some 4 million fourth graders to national parks but also public lands and waters operated by other federal agencies including the Army Corps of Engineers. Significantly, the park service will provide free transportation to select schools. The Corps and other agencies also are compiling ideas for related projects and events.



DRAWING BY ISABELLA SCHNABLE.

Kids go BONKERS FOR BIRDS

A bird is not just a bird—it’s a White-breasted Nuthatch, or maybe an Eastern Meadowlark—at least once you’ve spent much of a school year researching, identifying, drawing and coloring that particular species, down to the last tail feather.

Getting school-age children to appreciate the biodiversity of the Mississippi River is part of the goal of Bonkers for Birds, a research and art project for St. Louis area 4th and 5th grades, spearheaded by the U.S. Army Corps of Engineers’ National Great Rivers Museum.

And move over, guides from Audubon and Sibley. What started in 2007 with a class of 24 has grown to this year’s 2,622 students who drew birds found along the Mississippi River flyway for the honor of inclusion in a child-created field guide based on their artwork and scientific research. Each of this year’s 110 participating classrooms was assigned a particular bird species. Students learned about the particular bird’s behavior, range, features and migration patterns. Find the selected pictures from each represented species at: meetingoftherivers.org/html/bonkers.html.



PHOTOS: U.S. ARMY CORPS OF ENGINEERS, QUAD CITIES BOTANICAL CENTER.

Children’s Garden uses Mississippi River model to inspire

A river runs through the 2 acres of lush vegetation and water-play fun at the Quad Cities Botanical Center’s new children’s garden.

It’s not the Mississippi River, exactly. That’s about a quarter mile away and, well, a bit longer. But what visitors will find in the outdoor garden and river-shaped wading pool is an abstract facsimile of America’s River, one more easily explored by children as young as 18 months. Yet the river is still recognizable with its flowing current, weirs that create tiny rapids, and its three “locks” that children can remove to alter the water levels in a hands-on way to learn about the real nearby Lock and Dam 15.

Like in the actual river, there are alligators in the “Delta.” There’s a forest in the headwaters. And farming, demonstrated by a lush gardens produce for planned cooking classes, will be a focus near the center. Establishing a sense of place was key to the design concept as was instilling a sound sense of the river, says Ami Jenkins, Executive Director of the Quad Cities Botanical Center.

“We want to give kids the opportunity to have an experience similar to what the area offers on an adult scale,” she said. “The whole concept of the project is to provide children with an understanding of the force and significance of a river.”

The garden is being built in phases to allow for realization of an ambitious vision; at completion, the project will be almost \$9 million, with the river and entry plaza totaling \$1.5 million and providing the backbone for future expansion. Existing now is the entry plaza, which features a human sundial that lets children tell time by raising their arms and casting a shadow onto the dial. The Delta is next, its concrete fingers stretching out just like the real river, but also housing fun features like a partly sunken rowboat with a motion-activated geyser and massive gator that sprays mist through its snout. This coming summer, they will add the “headwaters” as a separate water feature that will feature aquatic plants, frogs, tadpoles and more.



Future stages will bring exhibits like an ancient Sauk Village, including a Three Sisters garden and council ring; a transportation garden telling the story of the adjacent railroad tracks; the way logs used to float down the Mississippi; and a river-town facade as it looked at the height of early commerce. A “storybook landscape” will feature recognizable characters and scenes from nature-themed children’s books, and an energy garden will showcase the use of water as energy and may let children pedal bikes to power a paddlewheel. An eagle overlook will likely prove popular among all ages with its viewing tower and plans for scopes to observe the many eagles that nest along the river.

Jenkins says it’s heartening to see how far the project has developed from a partnership with the Environmental Protection Agency and city that led to the reclaiming and decontamination of brownfield land and its transformation into beautiful gardens. But the best part has been watching the reaction of children as they waded in.

“To see those kids gathering up rocks, create their own dams and change the course of the river was pretty amazing after all our planning and thought,” she said. “Kids used it in ways we envisioned but in some cases ways dictated by their own creative minds ... In the end, we hope the children who visit gardens like this are going to become the environmental stewards of the future, loving and appreciating plants and how the Earth supports us.” —K.S.

For more:
qcgardens.com

U.S. Army Corps of Engineers, Rock Island
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Asian carp not advancing toward Lake Michigan, Corps chief says



In his appearance before the U.S. House Appropriations Subcommittee on Energy and Water Development earlier this year, Lt. Gen. Thomas P. Bostick, commanding general of the U.S. Army Corps of Engineers, testified that asian carp movement up the Chicago River has stalled behind an electric barrier installed to keep them from advancing toward the Great Lakes.

The adult fish, feared for the way they voraciously devour the food sources of other river fish and cause bodily harm when jumping, appear to be some 55 miles from Lake Michigan. Though electronic DNA sampling have indicated the possibility of carp far closer, established populations remain 143 miles from the lake, he said.

Monitoring of Asian carp population dynamics is done via a Telemetry monitoring plan that captures certain sport fish species above and below the electric fish barrier and some Asian carp well below the barrier and then tracks their movements. To date 432 fishes have been implanted with transmitters, and no tagged fish have been observed to swim through the Electric Dispersal Barriers in the upstream direction.

Construction work improves navigation safety

The U.S. Army Corps of Engineers wrapped up construction of six bendway weirs extending from the west bank into the river south of Memphis, all designed to widen the navigation channel and improve navigation safety at the narrow river bend. The swift currents and high water velocities previously pulled towboats toward the banks making it extremely difficult and hazardous for the towboats to safely navigate the river bend from either direction.

For a few weeks early this year, river traffic was temporarily restricted from 6 a.m. to 6 p.m. between river mile 637 and river mile 630. The daily accumulated queue of tows was allowed to pass each night, and the Corps' contractor didn't start the next day's work until the queue was completely cleared.

The project was part of the Channel Improvement Program for the Mississippi River and Tributaries Project, and construction was completed more than a month ahead of schedule.



Aboard the Viking Star in Europe

Viking ships take to the Mississippi

Viking River Cruises, a major player in the wildly popular European river cruise market, is launching its first cruise itinerary in North American on the Mississippi River, starting in 2017, with a home port in New Orleans. The company said it plans to build six boats over six years, each with a capacity of 300 passengers. Boats will dock in New Orleans near the French Quarter and head north as far as St. Paul, Minn., depending on season.

Scan here with your smartphone to go to the *Our Mississippi* website. Here, you can subscribe to our e-edition, read past editions and find river-related education materials.



Send story ideas to editor@ourmississippi.org

Questions or comments:

U.S.A.C.E. REGIONAL OUTREACH SPECIALISTS

- Kevin Bluhm, St. Paul, 651-290-5247
- Angela Freyermuth, Rock Island, 309-794-5341
- Kimberly Rea, West Alton, 636-899-0050
- Romanda Walker, St. Louis, 314-331-8090
- Sarah Koeppel, Vicksburg, 601-631-5894
- Bob Anderson, Mississippi Valley Division, 604-634-5760

Mailing list changes:

Angela Freyermuth, 309-794-5341

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Contributors this issue:

EDITOR/LEAD WRITER
 Kim Schneider
 DESIGNER
 Diane Kolak

CONTRIBUTING WRITERS
 Susan Ager
 Sharon Flesher
 Mike Whye

