

Our Mississippi



US Army Corps
of Engineers

PARTNERING TO KEEP
AMERICA'S RIVER GREAT

MISSISSIPPI VALLEY DIVISION • SPRING 2021



EXPLORE MINNESOTA

River of Respite

As a global pandemic limited opportunities for travel and entertainment, the Mississippi River stepped up to introduce a host of new visitors to its socially distanced charms.

U.S. ARMY CORPS OF ENGINEERS RANGER KATELYNN DEARTH

wasn't sure what to expect at her Rivers Project Office situated alongside the Riverlands Migratory Bird Sanctuary this past year. A global pandemic led to cancellations of what would have been dozens of school and other group trips to this site near St. Louis. The thousands of visitors they'd normally host for programs on paddling and birds wouldn't be coming.

"No one really knew what to expect in the absence of all of that," she said. "Would people be interested in socially distanced or self-guided programs? Would we be able to successfully reach our community with closed visitor centers?"

The answer was yes—and yes.

Just this one Corps-run recreation area saw a visitor increase of 32 percent, according to traffic counters, even without programs or an open center. One visitor she met on the trails, Dearth noted, commented that with hundreds of acres for hiking, paddling and bicycling, Riverlands "feels like a sanctuary for people too, not just birds."

The Corps is the nation's largest provider of water-focused activity. It offers scenic camping along the banks of the Mississippi River within the Rock Island district's Mississippi River Project, around bucolic headwaters lakes in the St. Paul District, and throughout the division at recreational sites also used to regulate river depths for its partner flood control and navigation missions. That's in addition to the many other federal lands run as wildlife refuges and national parks.



Our Mississippi is a newsletter of the U.S. Army Corps of Engineers about its work in the Mississippi River Basin toward both economic and ecological integrity of the river system. It is published by the U.S. Army Corps of Engineers, Mississippi Valley Division, in accordance with AR 360-1 for its Mississippi Valley workforce and external audiences and collaborative partners including other Corps' districts and stakeholders within the division's area of responsibility. The views and opinions expressed are not necessarily those of the U.S. Army Corps of Engineers, the U.S. Army or the U.S. Department of Defense.

Continued on page 2 >>

“I think public lands and outdoor spaces have, to me and to a lot of people, become crucial to maintaining a healthy state of mind during this pandemic.” —Bruce Reid



ABOVE: Paddlers explore the Mississippi River near the Twin Cities metropolitan area.

Outdoor recreation contributes \$4 billion to the economy each year in just the Upper Mississippi River basin, according to a recent basin report card developed by the non-profit America's Watershed Initiative—a project with which the Corps partners—and it supports 420,000 jobs. The Mississippi River Delta, known for fishing, hunting and exploring amid a very special ecosystem supporting critters like the Louisiana brown bear and vibrantly colored songbirds, had a similarly dramatic boom in recreation visitation, particularly through 2020s COVID-19 pandemic.

Bruce Reid, outreach specialist with the Lower Mississippi River Conservation Committee (LMRCC), a key Army Corps restoration partner, says he knows firsthand what drew so many to public lands this past year: a sanity break.

“I think public lands and outdoor spaces have, to me and to a lot of people, become crucial to maintaining a healthy state of mind during this pandemic,” he said.

As breaks from work and in-home isolation, he'd visit the Tensas River National Wildlife Refuge in Tallulah, La., about 30 miles west of Vicksburg, Mississippi. There, he says, he'd wander weekly amid 60,000 acres and see virtually no one, save the black bears, exotic birds and much more as he hiked, shot photographs, recorded bird sounds and enjoyed a “refuge for the soul.”

In the Mississippi Alluvial Valley, there are some 2.4 million acres of protected refuge land managed by the federal government, states or conservancies. Within that there also are several projects sponsored by the LMRCC and partners including the Corps that have goals such as reducing the spread of Asian carp for the benefit of native fish and recreational fishermen.

Corps programs that use dredged sediment to create islands and wetlands amenable to bird and fish life were called out in the report card as both bright spots and potential models to use throughout the watershed. It's all key to the balance the Corps works to strike in the multi-use Mississippi River and its watershed, says Andrew Schimp, operations manager for the Mississippi Rivers project. He's responsible for the operation of 380 miles of the Mississippi and Illinois Rivers including navigation, environmental and recreation missions.

The popularity of outdoor heart-healthy activities like hiking, biking and paddling has been on the rise for a few years, he says, but this year “was off the charts.” “Everybody feels safer if outdoors and able to enjoy federal water resources without being in big crowds,” he says.

The development of safe water trails has been a major thrust of the district, with the Corps working with towboat pilots to educate people on how to avoid tow boats and paddle safely; the Corps has also developed signage,



To comply with federal orders and slow the spread of COVID-19, the U.S. Army Corps of Engineers requires all visitors, volunteers and employees on Corps buildings and recreational lands to wear a face mask. Outdoors, masks must only be worn when physical distancing rules can't be met, such as when hiking on busy trails or visiting popular sites.

Visitors engaged in water-related activities such as swimming, waterskiing, kayaking and boating (if there's imminent risks of the masks getting wet) can temporarily forego wearing one. Physical distancing must always be maintained when possible, a requirement that complies with executive orders and guidance of the Center for Disease Control and Protection. The Corps also continually evaluates facility capacity and implements measures to reduce density as needed. For current rules and guidance relating to USACE recreation areas, check before you visit at: www.CorpsLakes.us.

access areas and primitive riverside camping spots. While the popularity increase will likely level off at some point, he notes, “We're hoping we've grabbed enough people's attention of what's out there and how important it is to use.”

The pandemic offered an unexpected opportunity to make improvements to Corps recreation areas. Through CARES act funding, crews installed amenities like touch-less faucets in shower facilities and rest areas, partnered with local law enforcement to enforce rules; installed signage on best Covid practices, and bought computer equipment to allow rangers to work from home or the field and minimize exposure when needed.

Some Corps facilities like the Lake Shelbyville Visitor Center were transformed for occasional use as mass vaccination clinics. Others like the Wappapello Campground saw a 20 percent increase in day use and camping visitation, even with a closure for part of the season, according to Amanda Kruse, a natural resource specialist with the Corps St. Louis District. While campgrounds were completely filled on weekends, rangers did outreach they'd ordinarily do through in-person programs with a virtual campaign that went national, offering lessons on bats, snakes, water safety and more.

The Corps' National Great Rivers Museum reopened in February, but rangers like Dearth hope the introduction to new visitors who came for socially distanced activities will further cement the connection with Corps projects and natural lands and usher in a new generation of river stewards.

“Personally,” she said, “I observed more vehicles filled with families than ever before. Birders and fishermen that I've seen coming out here alone for years now occasionally have kids or grandkids with them—teaching them and sharing their pastimes.” —K.S.

He tells the Great River's stories

Former Corps historian, author urges all to 'do right by the river'

"Don't you dare go near the river," warned the parents of a young John Anfinson when visiting his grandmother's house in north-central Minnesota. The river was the Mississippi and John and his twin brother, in the way of young boys, overlooked their parents' admonition. Anfinson has shaped that early fascination with the river into a notable career as an environmental historian, seeking to understand the environment, how we've changed it, and why.

As a history student at the University of Minnesota, he often wondered why the Mississippi River flowing between the east and west bank of campus didn't change more, not knowing about Lock and Dam One just five miles downstream. While still a student in 1980, he began working for the U.S. Army Corps of Engineers, Saint Paul District doing cultural resource reviews and learning about the navigation system that defines today's Mississippi River.

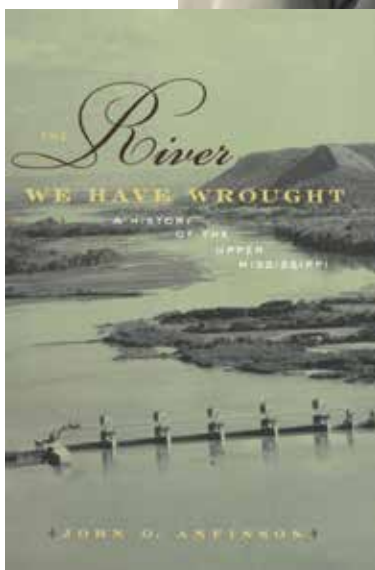
"It was through the Corps that I got to know the Mississippi River, because it's the Corps' biggest project," Anfinson said. His work as District historian and cultural resource program manager spanned a five-state area of the Upper Mississippi. Often, he translated his Corps professional reports into presentations or a brochure, sharing the river's stories with a wider audience.

Sharing those stories took on an even larger professional role when in 2000, he moved to the National Park Service as the cultural resource program manager for the Mississippi National River and Recreation Area. Later, he became the head for resources management for MNRRA and eventually served as Superintendent from 2014 to 2020.

While with the National Park Service, he finished "The River We Have Wrought," a history of the evolution of the visions Americans have held for the Upper Mississippi River and its purposes. The book tracks the forces of farming and railroads, commerce and conservation that created the navigation-shaped river of today. It also highlights how development of river infrastructure was driven by public pressure on Congress to authorize and fund projects, which the Corps was charged to build.

He is contemplating a book, potentially titled "A Long Adventure of the Great River," which expands on that theme of how people have viewed the river and how integral the Mississippi is to the American story.

"Even before French explorers Marquette and Joliet became the first explorers to actually know they've reached the Mississippi, the river is already renowned. That renown builds constantly through time and through every traveler talking about it, through every event along it," Anfinson said. "Photographer Charles Dee Sharp says it's as significant as Old Glory to America because traveling the river, you are going through the narrative of America itself, who we have been as a country, where we've been, where we're going."



John Anfinson, a former U.S. Army Corps of Engineers historian, stands along the Mississippi River, the waterway he's long studied and interpreted.

Today's vision for the Mississippi has shifted. Now, smaller towns, especially tourism-oriented ones, still rely on the river, but big cities have lost some of that connection. "Historically, the river was everything to river communities. It was their life-line to the world; it is how they sent their goods out and they brought new goods

in. I think we've just grown away from the river. That's not to take away from what a lot of river communities are trying to do, including Minneapolis and St. Paul. But they've got a lot of other things to do too," Anfinson said.

The loss of appreciation for the river's current economic value exemplifies that shift. More than 50 percent of Minnesota's agricultural exports ship via the Mississippi River, according to the Minnesota Department of Transportation. "I think it's extremely hard for the Corps right now to convey to the general public the river's role in commerce. The public has no clue overall as to how much grain or other commodities are shipped on the river," he said.

Yet, communities all along the river continue to commit resources to sharing the value of the Mississippi River. As co-chair of the national Mississippi River Parkway Commission's cultural heritage committee, Anfinson sees the stories offered by the 90 official interpretive centers of the Great River Road, which runs the full length of the Mississippi and recently achieved All-American Road status. As part of his research for his latest book, he plans a post-COVID road trip to visit them.

"I think we need a new way to bring people back to the river, to get them interested in it and to care about it. It is the culture and heritage aspect of it that people resonate with," Anfinson said.

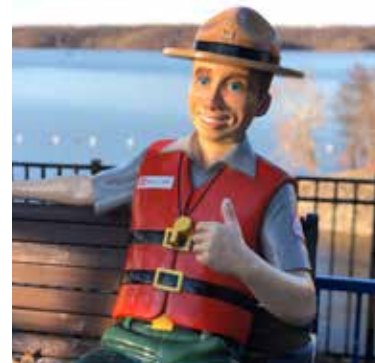
His advice to those building new river-focused developments today?

"Consider how we respect one of the greatest rivers in the world. Demonstrate that respect by our behavior, whether it's through how we might reduce pollution or build something that belongs on the river. It's got to be great. Do right by the river."

—D.D.

fun fact

The uniform worn at recreation sites by U.S. Army Corps of Engineers rangers evolved from the military uniform worn during the early years of Yellowstone National Park, and that was no accident. The St. Paul District of the Corps built Yellowstone's first roads and trails, allowing for the initial public access to the country's original national park. It also created a recreation area even earlier while working to control the depths of the mighty Mississippi for boat traffic; in 1883, the Corps constructed a reservoir that allowed for strategic releasing to create navigable waters further south. But people also wanted to boat and fish there, and so three years before Yellowstone became a park, the Corps developed a park and boat landing. Recreation became an official Corps mission in 1944, and today, the U.S. Army Corps of Engineers is the nation's largest provider of water-based outdoor recreation in the nation with more than 400 lakes and river projects in 43 states.





Celery ducks



Revered canvasbacks find a home on the Upper Mississippi

The pools of the Upper Mississippi River Basin have become favored migratory stops for the revered canvasback duck over the past half-century. About 75 percent of canvasbacks, according to a 1985 study, feed for weeks each spring and fall on pools created by lock and dam construction.

After historically important feeding areas across North America were largely abandoned due to lack of food resulting from poor water quality, the ducks discovered the Upper Mississippi. The impounded waters had become perfect resting and feeding grounds for canvasbacks by providing growing conditions for their favorite food: the submerged winter buds of wild celery.

Wild celery also provides cover for fish and invertebrates, making its health a goal of habitat restoration and enhancement projects (HREP) conducted by the Upper Mississippi River Restoration (UMRR) Program of the U.S. Army Corps of Engineers.

Long a valued resource

European settlers named the canvasback for the color and texture of the male's back feathers. They correctly attributed its delicate taste to its celery diet during migrations. Its scientific designation, *Aythya valisineria*, translates to "bird celery." The name recognizes its affinity for wild celery: *Vallisneria spiralis*.

Until the 1950s, wild celery flourished in the Detroit and Illinois rivers, many Midwestern lakes and Chesapeake Bay in Maryland and Virginia. About half of North American canvasbacks wintered on the bay at one time, though numbers there have plummeted 90 percent.

Submerged aquatic vegetation now thrives from Mississippi River Pool 4 to Pool 13, said Kirsten Schmidt, a University of Wisconsin-Stevens Point graduate student. "When those locks and dams were installed in the 1930s, submerged aquatic vegetation began showing up."

Schmidt studied an improved method of quantifying wild celery buds in Upper Mississippi pools with a research grant from UMRR's Long-Term Resource Monitoring (LTRM) program. "That's one reason LTRM was started," she said. "We saw how valuable this resource was to ecosystems."

Winter buds

Each fall, wild celery creates "winter buds" submerged in bottom sediments. The buds remain dormant until spring, when they will sprout into new plants. Canvasbacks are omnivores that can eat mussels and insects, but it is celery buds that make their migrations possible.

Schmidt's research validated a means of using "rake studies" to estimate underground wild celery bud counts and food energy by measuring leaves in the water. "Soil coring and substrate quadrant sampling are more expensive and time consuming," she said. The canvasback's large webbed feet, strong legs and narrow bill help it dive about six feet and pull buds from the substrate.

"The canvasback is structurally and behaviorally adapted for foraging under water," Schmidt said. "The wild celery buds are packed with carbohydrates, like a potato. By foraging on these buds the birds put on the fat they need to complete their migrations."

Migrating canvasbacks spend up to two weeks resting and feasting on the buds in hopes of increasing their body weight 16 to 24 percent. Without that fat to fuel their migration, they couldn't fly as far or fast, said Stephen Winter, a U.S. Fish and Wildlife Service (FWS) wildlife biologist at the Upper Mississippi River National Wildlife and Fish Refuge that covers parts of Minnesota, Wisconsin, Iowa and Illinois.

"If they do get to where they are going, they might be in a lower body condition and less likely to survive the winter. If they arrive at their spring breeding ground in poor condition, they may lay fewer eggs or may not even breed."

The seasonal canvasback range stretches from Alaska to northern Mexico. Scientific counts began in 1955, and population estimates averaged 520,000 until the 1990s. Numbers have rebounded and were estimated at 700,000 by the U.S. Fish and Wildlife Service in 2017.

Restoration and enhancement

Schmidt's research on pools 4, 8 and 13 will assist in planning and evaluating measures deployed in HREPs to support submerged aquatic vegetation. A current HREP in Pool 13 combines the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service and natural resources departments of Iowa and Illinois, Winter said. The team is trying to figure out what structures can be constructed to make the water velocity and wave energy optimal for wild celery, and barrier islands are often placed on such sites to improve habitat.

"We are hoping the rake method can be adapted to monitor aquatic vegetation responses to other restoration projects," Schmidt said. "We want to see how these barrier islands affect the vegetation community." —R.S.



Fowl Royalty Game gourmands revere canvasbacks as the "King of Ducks." Always a priority species in waterfowl management, their numbers while doing reasonably well have never recovered to what they apparently were in the 19th century when they appeared on the menus of fancy restaurants of the time.

Until market hunting was outlawed by the Migratory Bird Treaty Act in 1918, cannon-sized punt guns could wipe out a flock with a single blast. Habitat losses, some due to siltation, and droughts also have diminished canvasback numbers.

Canvasbacks have shorter bodies and wing spans than mallards but weigh a bit more, averaging 2.7 pounds. They were sought as a delicacy because their diets made them so much tastier than other ducks whose diets of clams and fish leave an unusual taste to the flesh, according to Stephen Winter, a U.S. Fish and Wildlife Service (FWS) wildlife biologist. Native Americans apparently savored the taste of canvasbacks too. Archaeologists excavating a Nevada cave found hunting decoys resembling canvasbacks that were dated to 2,000 years old.

Celery basics

Grass of long, slender leaves bearing a light green stripe. The leaves grow in clusters up to five feet in length and thrive in fresh or slightly brackish waters.

Withstands waves and water flow better than other water grasses.

Blooms tiny white flowers on stalks that grow to the water's surface. Male flowers release pollen to fertilize female flowers, which produce seed pods.

Remains dormant through winter and produces new plants in spring.

TOP, FROM LEFT: Canvasbacks, the King of the Ducks, are thriving in the impounded pools of the Upper Mississippi River, even as their numbers decline elsewhere. Researcher Kirsten Schmidt with the Corps' Upper Mississippi River Restoration program has developed an improved way to quantify the presence of the ducks' preferred food sources.

Corps interior least tern's project deemed model conservation success



The inland population of America's littlest tern recently left the endangered species list. Here's how conservationists brought the birds back.

ON A CLOUDY DAY LAST JULY, a group of conservationists near St. Louis, Missouri, hopped into a small boat armed with cardboard boxes and yellow leg bands just a few millimeters in diameter. They motored toward a concrete barge anchored offshore, where they rounded up 18 squeaking, fuzzy, golf-ball-size Interior Least Tern chicks into a box for banding.

"Good luck, little guys," said Jeff Meshach, deputy director of the St. Louis-based wildlife hospital World Bird Sanctuary. After placing a delicate yellow band on one leg of each chick, he gently spilled them back onto the barge—their nesting habitat parked in a pond along the Mississippi River. When they grow up, it's possible they'll return to nest here; the bands let the conservationists keep track of them. "Hope all of you come back next year and raise your own kids here," he said.

When Interior Least Terns were listed under the Endangered Species Act in 1985, the birds had vanished from much of their historic range, including this area near St. Louis where the Missouri River meets the Mississippi River. But they have since bounced back, and today roughly 18,000 birds raise their chicks on nest barges and sandbars across nearly 3,000 miles of river in 18 states. Earlier this year, the U.S. Fish and Wildlife Service recognized the Interior Least Tern's recovery by removing it from the federal list of endangered species under the Endangered Species Act (ESA), effective Feb. 12.

The Least Tern is America's smallest tern: Adults weigh less than two ounces and measure eight to nine inches long. The species is widely distributed, nesting on Pacific and Atlantic coast beaches as well as along rivers' soft shorelines. But the birds that nest in the country's interior are managed as a distinct population. During the summer nesting season, Interior Least Terns can be found along the Mississippi, Missouri, Ohio, Arkansas, and other rivers throughout the Central United States.

Those rivers have undergone significant change over the past century, and the birds have, too. Beginning in the mid-20th century, the U.S. Army Corps of Engineers dredged and streamlined complex river networks to construct a single wide, deep passage to make room for ships moving goods. These management efforts did away with many secondary tributaries and sandy islands where terns liked to nest.

The few beaches that survived remained connected to the mainland, which made the terns' shallow nests easy pickings for predators like foxes and coyotes. By the 1980s, Interior Least Tern populations had plummeted to fewer than 2,000 adult birds; they were listed as federally endangered in 1985.

The listing forced the Army Corps to protect the remaining Interior Least Tern habitat, and their numbers began climbing back up—but not significantly enough to ensure the population's long-term survival. Then, about 20 years ago, Paul Hartfield with the U.S. Fish and Wildlife Service (FWS) approached the Mississippi Valley Division of the Corps with a proposition: Rather than working at odds, FWS and the Corps could work together.

An experiment that worked

In a recent interview with *Audubon* magazine, Hartfield recalled his argument. At the turn of the millennium, the Corps generally fought against the

ESA and the FWS, viewing conservation policy as bureaucratic red tape that interfered with their construction projects. Instead, he argued, the Mississippi Valley Division of the Corps could save time and money by integrating conservation into their programs at a fundamental level. By making a few small changes, they could, for example, dredge rivers more intentionally to construct a healthy, complex ecosystem for a number of endangered species like pallid sturgeon, fat pocketbook mussels, and Least Terns.

"What had been lost in the river ever since they started managing it was habitat and depth diversity," says Hartfield, who served as the Interior Least Tern lead recovery biologist for 10 years. "So, we agreed that what we would do is manage for habitat complexity and explore the possibility of opening up some of the [river] channels that had been closed."

The Corps was skeptical at first, but they agreed to try. First, they carved experimental 200-foot notches in dikes that had been installed to streamline river flow and reduce erosion. The notches redirected some water into secondary streams that disconnected islands of sandy habitat from the mainland, protecting nesting birds from predators and human beachgoers. Dikes with notches proved to be just as structurally sound as those without—and ended up being cheaper to build because they used less material.

By 2013, nearly a third of all dikes in the Lower Mississippi (roughly 300) had been notched, and new dikes were constructed with this feature already in place.

The Corps also began to construct new sandbar islands for terns using sand routinely dredged from the bottom of the river, which they would otherwise dump in a heap offshore. During a trial of this technique on the Ohio River in 2002, terns began nesting on the new sandbars the very next day. One month later, there were 64 active nests.

They also began experimenting with placing barges in rivers to serve as nesting islands for terns. The nesting barge near St. Louis is an example of a project managed by the Corps in cooperation with conservation groups, including Audubon. "It's a very unique and collaborative partnership we have," says Tara Hohman, a conservation scientist with Missouri's Audubon Center at Riverlands located in the center of lands managed by the Corps.

The collaborative efforts have paid off. About 80 percent of the Interior Least Tern's habitat is now managed by the Corps in this way, and the population numbers roughly 18,000 individuals. The Corps is also applying this management approach to other endangered species conservation efforts, such as the Least Bell's Vireo in southern California.

Hartfield, who drafted the recommendation to delist the Interior Least Tern before retiring this year, is confident that ecosystem-based management of the tern's habitat will continue independently of its endangered species status. "Conservation is now part of that ecosystem," Hartfield says.

The Corps-managed nesting barge near St. Louis, for instance, will persist as tern habitat for the foreseeable future. And conservation groups will keep tabs to make sure the birds also stick around even after their federal protections have disappeared. —REPRINTED WITH PERMISSION FROM AUDUBON MAGAZINE AND EDITORIAL INTERN RACHEL FRITTS

MORE:
riverlands.audubon.org

TOP, FROM LEFT: The U.S. Army Corps of Engineers' commitment to helping bring back the Interior Least Tern includes docking a retired barge for a nesting platform. Right: a baby raised in a barge nest.



FLOODWALL TURNS CANVAS

A New Orleans artist takes his Big Easy river vision to the wall

Countless citizens and tourists alike have driven down Tchoupitoulas Street in New Orleans, along the massive gray concrete floodwall that holds the Mississippi River back from the city. That floodwall, located along the biggest bend in the Big River's trip past the Big Easy, is the ongoing legacy of the Army Corps of Engineers' work on the Mississippi River, which began with a Congressional act in 1824 and continues today.

Managed by the Louisiana Flood Protection Authority East along with the Army Corps of Engineers, this floodwall is something else altogether to renowned New Orleans artist (and native) J. Pierre. For from the time he was a youngster and began his artistic career as a spray-paint wall tagger/graffiti artist, Jamar Pierre has seen it as a canvas to be brought to life.

In that time before cities like New Orleans embraced wall murals, he was already imagining a vision for the floodwall and creating his artistic style, which he describes as "contemporary folk art."

Convincing the powers that be to allow the mural
As J. Pierre's career took off over the ensuing 25 years, his idea for the floodwall became more feasible. But in order to bring his vision to life, he needed the go-ahead from those combined powers that be who make the decisions about that floodwall, so he set out to convince the U.S. Army Corps of Engineers and the Authority to permit him to create a massive one-mile-long mural celebrating NOLA's past, present and future.

Pierre knew that getting permission was something of a long shot, as the U.S. Army Corps of Engineers and the Authority had never given permission for the floodwall to be used as an artistic canvas in modern history. In fact, it took Pierre and his business partner, Daniel Pate, a few years of presentations and negotiations to finally win the coveted permit that allows the mural to be painted.

"It definitely helped that I had been chosen by the NOLA Foundation as the official artist for the city's tricentennial celebration in 2018," the 47-year-old artist recalls. For that commemoration, he painted "Resilience," a large canvas featuring everything from steamboats to musicians to alligators and Mardi Gras Indians; it served as his calling card to the Army Corps and the Authority, showing them his direction for the

floodwall mural.

"It took going to a lot of council and board meetings, getting things like insurance and other paperwork in place with both the state and the federal government to make it happen," Pierre says. The process of getting the permit took about three years, he recalls, and required specific content agreements required by the Authority. For example, they insisted that he had to convince the Army Corps to allow the project. Images had to be nonpolitical, he couldn't use it as a billboard and he had to remove any graffiti that might appear on the wall after completion.

Once he had the go-ahead, the mural wouldn't be J. Pierre's alone, for he knew from the start that he'd need help in many ways to create his vision celebrating a mile's worth of the history and culture of this vibrant city. Leading the group known as the New Orleans International Muralists (NOIM), who are commissioned to create wall murals all over town, Jamar Pierre has enlisted other local artists to help him paint his floodwall designs.

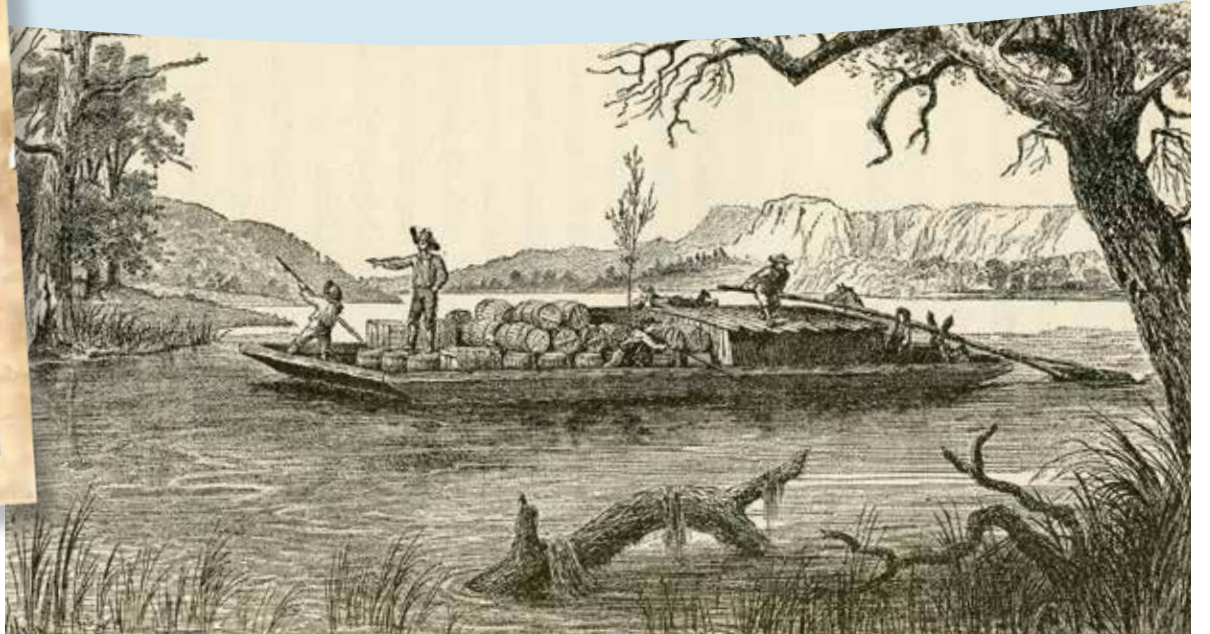
Those designs center on one through line, as J. Pierre explains. "The water has to be a theme, throughout the whole mural, because the story of our city is that river. In the early panels, I want people to feel and see how it would have looked before the early Europeans came."

As the mural's visuals progress through time, the story encompasses what Pierre calls "the diversity, inclusion and resilience of New Orleans, with a positive message." So he'll transform those long, gray arched wall with images he's already painted of pristine wilderness (complete with alligators and pelicans), indigenous Native Americans and Spanish explorers, as well as coming panels celebrating the French, Africans, Italians, Germans, and Creoles and Cajuns that make up this melting pot city.

Funding for the project kicked off with Walmart's contribution, which allowed J. Pierre to paint a "whole city block" between their store on Tchoupitoulas and the police station at St. Mary Street, completed in December 2020. That mural celebrates current New Orleans, complete with the melding of a tribute to pandemic healthcare workers and the city's musical culture. And while keeping the permit he received from the Flood Authority valid hasn't been a problem, Pierre continues to solicit both corporate and individual donations to keep the paint flowing. —J.P.



FROM TOP: Official New Orleans tricentennial artist J. Pierre's reflections of the city's history on a very special mural. He won permission by the U.S. Army Corps of Engineers to translate the city's history through art onto the city's floodwalls.



Abe Lincoln, Mississippi Riverman and Longboat pilot

Experiences on the river shaped Lincoln's groundbreaking views on slavery, historians say

The teenager's long, muscular arms and callused hands often were covered with sweat and sawdust in the spring of 1828 as he spent three months chopping down trees and hand-sawing them into boards to build a flatboat. He then steered the boat, carrying kegs of produce and salted pork, on a perilous three-month river journey to market in New Orleans.

Three decades later he became president of the United States.

Historians often rank Abraham Lincoln as the greatest United States president. But their biogra-

Historians often rank Abraham Lincoln as the greatest United States president. But their biographies tend to overlook the influences of Midwestern rivers on his views of law, politics and slavery.

phies tend to overlook the influences of Midwestern rivers on his views of law, politics and slavery. Carl Sandburg covered Lincoln's river days in just eight pages of his six-volume, Pulitzer Prize-winning biography published in 1926.

That doesn't mean they weren't impactful. As a poor Indiana teenager Lincoln earned precious silver coins ferrying passengers to steamboats passing on the Ohio River. Twice he built crude flatboats and steered them down the rivers to New Orleans, where he witnessed slave auctions—moments that experts say shaped his later anti slavery views and actions.

He was also awarded a patent for a steamboat device and as a young lawyer argued a landmark case on river transportation rights.

"Abraham Lincoln was a riverman for only a short time, but his relationship to the river had great significance in American history," stated the National Rivers Hall of Fame in Dubuque, Iowa, when it inducted him in 2007.

When Lincoln was 18 and operating his part-time ferry, he was lured across the river and abducted by brothers John and Lin Dill. Claiming Abe was violating their Kentucky charter to operate a ferry there, they took him to the nearest court. Justice of the Peace Squire Samuel Pate dropped the charge because Lincoln had not carried passengers beyond the middle of the river and therefore had done business in Indiana—not Kentucky.

After the ruling, Lincoln decided to study law.

River pilot

At 19 he was hired by farmer James Gentry, who "believed Abe could take his pork, flour, meal, bacon, potatoes and produce to trade." Lincoln built a flatboat to do so with Gentry's son Allen, who accompanied him down the Ohio and Mississippi rivers.

By 1831 the Lincoln family had moved to a farm near Springfield, Illinois, and Abe was hired to build a flatboat and guide goods to market.

In 1830 New Orleans was the river valley's major market. It had 50,000 mouths to feed: twice as many as St. Louis and Memphis combined.

Lincoln's boats probably measured 12 by 30 feet and could carry a couple of tons of cargo, said Capt. John Cooper of Gallatin, Tennessee, who has built 23 flatboat replicas. "It took them three to four months to build the first flatboat. He was a very strong, tough man. We can't imagine doing today what those men did."

Floating with the river's current was not leisurely work, Cooper said. The crew had to fight strong winds and steer away from the shore, shoals and dead tree snags. Unless the boat was rowed faster than the current, four to six miles an hour, the rudder was useless.

The crude hulls were assembled with hickory plugs banged into hand-drilled holes. Seams were constantly plugged with cotton rope soaked in tar. River banks were littered with wrecks.

"Of every 10 flatboats that set sail for New Orleans, probably one or two never made it," Cooper said.

In New Orleans, the boats were dismantled for their wood and sold along with their cargo. "Flatboats were built to go downriver and never come back," Cooper said.

In 1849 Lincoln received a U.S. patent for inflatable canvas bladders that would lift a steamboat through shallow water. A working version was never built.

Lincoln's memories of New Orleans remained vivid during his presidency and the Civil War, Sandburg wrote. At the end of the first trip, he "lingered and loitered a few days, seeing New Orleans, before taking a steamer north." He saw "slaves passed handcuffed into gangs headed for cotton fields" and heard talk of "how to rawhide the bad ones with mule whips."

Years later Lincoln said, "If slavery is not wrong, nothing is wrong. I can not remember when I did not so think and feel." —K.S.

Historic preservation teams have key link to Memorial Day

For archaeologists with the St. Louis Districts of the Army Corps of Engineers, Memorial Day—or Decoration Day as was first designated as a way to honor fallen Civil War soldiers—means many different things, depending on the project. But many days at work bring the chance to honor fallen heroes, and by many definitions, according to Mark Smith, the supervisory archeologist with the Mandatory Center of Expertise for the Curation and Management of Archaeological Collections.

The Corps' mission to preserve and protect trust resources, ensure reasonable access to sacred sites and to comply with the Native American Graves Protection and Repatriation Act can lead teams into unexpected places. But no project has as significant a link to Memorial Day as the ongoing restoration of the gates at Arlington National Cemetery.

At Arlington, Memorial Day services alone attract approximately 5,000 visitors while approximately four million families, friends and tourists visit the 624 acre site each year. To keep up with these increasing demands, Arlington Cemetery was expanded in 1966, and by 1971, (the same year Memorial Day officially replaced Decoration Day) the cemetery had lost two of its most iconic, beautiful and meaningful entry gates. Named the Ord-Weitzel and Sheridan Gates, they were brought down and placed in storage as they were deemed too narrow to support increasing vehicle traffic.

Through the mandatory center for expertise, conservation work on the valuable gates began in 2012.

The historical preservation teams did scanning and documentation work on the gates and contracted for their removal from the elements and their move to a storage area. Four of the six columns that are part of the gates contain the inscribed names of war time leaders including Abraham Lincoln and General Ulysses S. Grant. The names are reflective of the intent to honor Civil War dead during the first Decoration Day in 1868. —M.B.

Grading the world's third largest watershed

*At grade card time, how'd the Mississippi's watershed fare?
This "semester," just a bit below average.*

THE MISSISSIPPI RIVER WATERSHED is threatened by frequent and extreme flooding, aging infrastructure, and both chemical pollution and nutrient runoff that threaten the nation's water supply. Partly because of below average scores in areas like water quality and flood risk (both D's), the Mississippi River basin scored a C- overall in a recent river report card.

But there are bright spots, according to America's Watershed Initiative, the non-profit group that created this second-ever report card to measure status and progress. Areas measured include the economy, water supply, transportation, recreation, flood control and risk management and water quality and ecosystems. Scores were also divided by basin: the Upper Mississippi, the Lower Mississippi, the Gulf Coast, the Missouri River, the Ohio and Tennessee Rivers and the Arkansas and Red.

The C- represented a slight improvement from the D+ earned five years ago. Improvements were noted in recreation—particularly due to a rise in national park visits and fishing license purchases over the past year—as well as in navigation. In that area, delays were reduced in large part, the report noted, by effective maintenance work by the U.S. Army Corps of Engineers and federal funding that made the work possible.

America's Watershed Initiative was convened following the 2010 America's Inter Coast Summit, launched with leadership from The Nature Conservancy and the U.S. Army Corps of Engineers. It started as a coalition of agencies and individuals and has since incorporated as a nonprofit.

In a presentation to the Upper Mississippi River Basin Association, Executive Director Kimberly Lutz emphasized the importance of evaluating the third largest watershed in the world. Some 250 rivers drain into it, and it's a powerhouse both economically and in the number of plants and animals that call this home. The report card seeks to capture the holistic importance in a format most can readily grasp.

"Everybody got a report card growing up," she said. "We intuitively know what the grades mean. We see it as a great communication tool for telling a very complex story."

While serious needs remain, the 2020 Mississippi River Watershed Report Card describes progress toward achieving the goals established in the original 2015 report card, highlights some of the important work that partners across the watershed are doing to make positive change, and documents the work and investment that remains.

Flood risk reduction is a major issue because of the recent spate of extreme storm events. There's also the simple fact that humankind likes to live near rivers and coasts and has built in the floodplain, Lutz said. Offering promise is a project in the state of Missouri in which levees are being set back further from the river to give the river more room to move within the floodplain and absorb more water in a flood event.

Other work by the U.S. Army Corps of Engineers was called out in the report as examples for floodplain models. At Gunn Island in southern Louisiana, sediment dredged by the Corps to keep the navigation channel open is being used to restore 10,000 acres and provide habitat for a massive number of shorebirds.

In the grading evaluation of 10 years of lock and dam delays, the analysis found a reduction in delays, particularly unscheduled ones.

Andrew Schimp, operations manager for the Corps' Mississippi Rivers project, says that has been the case in his St. Louis District. The reason is that there has been a slow, steady increase in operation and maintenance funding, he said, as well as efficiencies gained from working closely with other districts and the navigation industry.

"Even with scheduled closures, we're trying to coordinate those the best that we can," he said. "As for keeping locks in good working condition, that's a product of putting maintenance into them. We've also had a series of major rehabs up and down the river that has put the reliability back into the project." —K.S.

River Commission heads out to listen

U.S. Army Corps of Engineers Commanding General and Chief of Engineers Lt. Gen. Scott Spellmon toured the Melvin Price Locks and Dam and National Great Rivers Museum in a visit that highlighted the 9 foot Navigation Channel project and the Corps' Navigation Ecosystem and Sustainability Program. He later joined the Mississippi River Commission for a tour of Levee 536, a visit that highlighted 2019 flood repair successes and challenges.

The visit preceded the commission's spring inspection tour held over a series of four public meetings in locations from New Madrid, Missouri, to New Orleans, Louisiana. The Mississippi River Commission was established by Congress on June 28, 1879, with the mission of improving the condition of the Mississippi River, fostering navigation, promoting commerce and preventing destructive floods. Shortly after its creation, it began coordinating local efforts and setting standards for levee constructions, efforts that led to inspection trips that have taken place since 1882, all aboard motor vessels named Mississippi.



Ricco Chalmers, 41, Chief, Yard and Docks, U.S. Army Corps of Engineers Memphis District and Mission Manager, Corps Temporary Emergency Power Team

"When FEMA gets a hurricane on its radar, they notify us that it's a possible mission. You want to get the power on, and then everything else follows. With Hurricane Laura, we got called ahead of the storm. We packed our bags and we prepared our personal lives. We headed onto the road with essentials like our vests, our hard hats and red shirts so people know we're with the Corps of Engineers. We dispatched a truck which acts as our mobile command center.

"Usually FEMA has a location already set up in each region where storms normally hit so you are close to the area impacted. The first thing I did was I had to get some real estate. Normally for a huge power mission we would like five acres for a staging base. There, we put all the generators that FEMA sends us. Depending on how badly they think it's going to get hit, they send us power packs—roughly 30 generators in a pack. We also need room for the tow trucks that deliver generators to the site, forklifts, the service trucks for electricians and mechanics and then offices. It's a big operation.

"The power team focuses on critical facilities—hospitals, fire departments, police stations, schools, wastewater, potable water: things that are life sustaining and lifesaving. We initially take in the generators they send us and wait for the state to make a request.

"When I do get a request through the system, I make sure my team is on top of it and gets the generator out. I picture that could be me and my family without the necessities like water and food. Without power, your food goes bad. You can't get water to the house. You can't see.

"My team was down there start to finish. I left in August and came back the beginning of November. We had over 176 requests, and I believe we installed roughly 91 generators. Some got canceled because power was restored. I get a warm feeling when we're able to help. I'm greeted with the warm arms and thank you's from the community when they see my red shirt. They don't really know what my job was. They just know I'm one of the red shirts that brought them a generator."

Restoration project protects Mississippi Headwaters

The fish flashing past their feet told them their work was already a success. A Minnesota Department of Natural Resources fisheries crew watched last fall as young northern pike dashed up the newly restored connection between the Mississippi River and its source, Lake Itasca, and a shimmer of minnows scurried downriver to escape the newly arrived predators.

The river habitat restoration crew was still in the midst of completing a project at the headwaters of the Mississippi River in Itasca State Park when they spotted the fish. But already, the reshaped connection between the lake and the river was improving life for its aquatic residents.

The refurbished channel strengthened the traditional ecological connection between lake and river but also reduced shoreline erosion. The crew had placed boulders atop the original dam to create a properly shaped channel to produce a natural flow to the water. New boulder placement directs water away from the shoreline, preventing scouring of the streambanks.

"Erosion at the headwaters has occurred gradually over a long period of time due to heavy visitation rates and the action of water scouring and undercutting the shoreline and widening the river. The river channel was 40 feet wide after the dam was built and measured 70 feet in 2018," said Cindy Lueth, project manager with the Minnesota Department of Natural Resources regional Parks and Trails division. "While the river downstream of the headwaters is still intact and does not show visible impacts of the erosion, this project will ensure it remains protected into the future."

The dam dates back to 1930s and the Civilian Conservation Corps. Young men assigned to an Itasca-area camp built a horseshoe-shaped dam and topped it with stepping stones to mark the start of the river, said Connie Cox, leader interpretive naturalist at Itasca State Park. "Of the park's 500,000 (annual) visitors, probably 90 to 95 percent of those visitors crossed those rocks," she said. The iconic engraved log marking the headwaters also dates to that era.

The CCC crews took seven years to restore the headwaters area in the early decades of Itasca State Park. Part of that work was restoring the original course

and elevation of the upper stretch of the Mississippi. Log drives in the early 20th century had scoured the channel and left a "muddy mess," said Cox. Lumber companies had even straightened out a 90-degree bend in the river to accelerate the flow of logs to the sawmills in Minneapolis.

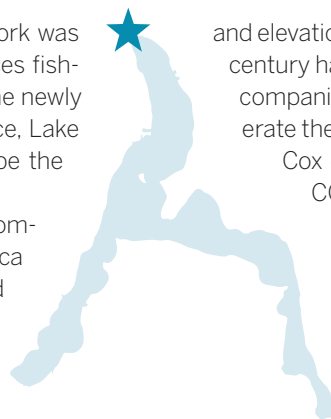
Cox credits the U.S. Army Corps of Engineers with the success of the CCC restoration efforts. "The Army Corps of Engineers was required to map the entire Mississippi River. They started from the Gulf of Mexico, because you're going to do the navigable water section first. In 1900, they did the survey of Lake Itasca and that first stretch of the Mississippi River. Then, in 1901 was the first log drive. By having had the river mapped before any damage had been done, the Conservation Corps boys could take that map and restore the river to its original channel," she said.

Shoreline plantings of natural vegetation are also part of the current restoration project, providing further erosion protection. But despite its significant benefits to the river, the visible differences have been minimal.

"As far as impacting the river and its appearance to the general public, it really wasn't noticeable. Some of those who came last fall were visitors who come year after year and they couldn't even tell the difference," Cox said. The project closed the headwaters area of the park to visitors for just 3.5 days in October 2020.

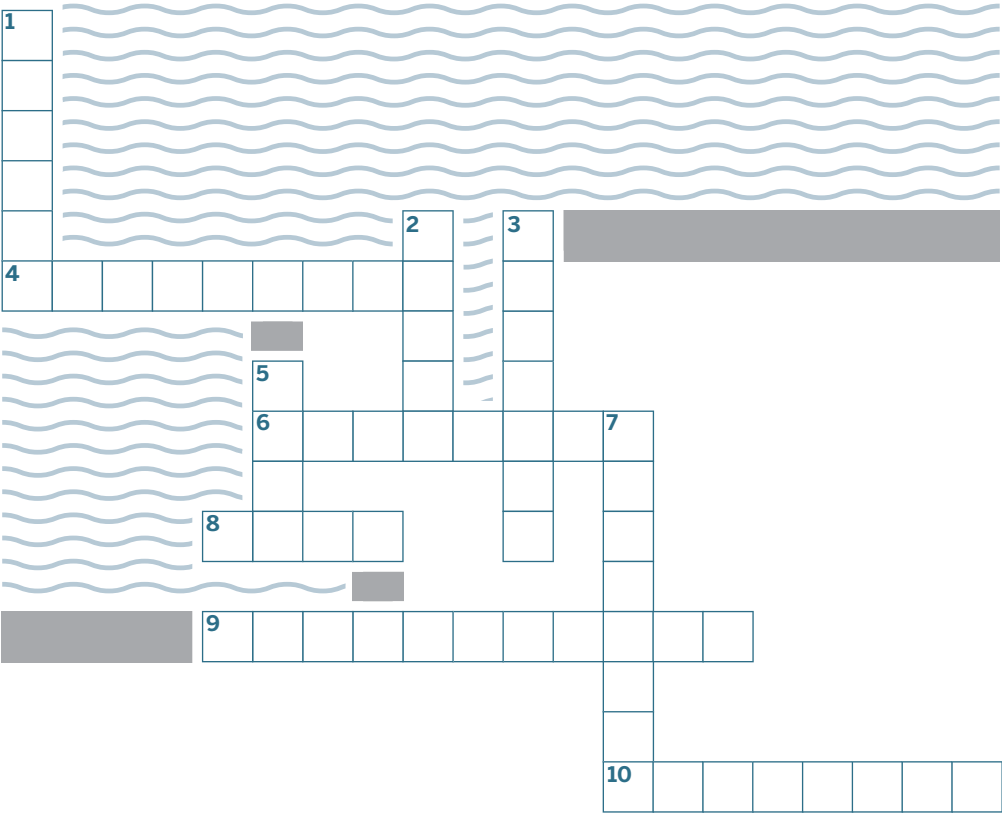
Design and execution of the Mississippi River headwaters restoration project cost just \$10,000 in materials and was a collaborative effort of multiple MDNR divisions, Lueth said. Luther Aadlund, a MDNR river ecologist, created the first concept plans in June 2018. The MDNR Parks and Trails Division worked with project engineers and State Historic Preservation Office to design a solution to the erosion that maintained the essential historic nature of the headwaters, one of Minnesota's most photographed sites. The MDNR fisheries construction crew completed the project.

Protecting water quality in the Mississippi River was one of the reasons for the establishment of Itasca State Park in 1891. Its 32,000 acres hold 20 percent of Minnesota's remaining old growth forests, a fitting beginning for one of America's greatest rivers. —D.D.





A Crossword Puzzle about Dams



Across

- 4 a body of water impounded by a dam
- 6 part of a valley side against which a dam is constructed
- 8 a nearly horizontal step in the slope of an embankment dam
- 9 process resulting from inadequate spillway capacity
- 10 a structure designed to release water from behind a dam

Down

- 1 dam named for U.S. president who took office in 1928
- 2 the top of a dam
- 3 a passageway in the body of a dam
- 5 a movable, watertight barrier for the control of water in a waterway
- 7 type of dam that contains mining wastes

Word Bank: ABUTMENT, BERM, CREST, GALLERY, GATE, HOOVER, OVERTOPPING, RESERVOIR, SPILLWAY, TAILINGS

Engineer your own dam

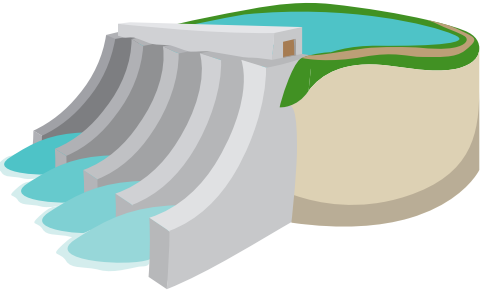
You'll see many locks and dams along the Mississippi River and its recreation and flood control projects nearby. That's partly because the U.S. Army Corps of Engineers protects people from water, protects water from people and makes water useful through its building and management of dams.

The Corps operates and maintains approximately 700 dams nationwide and in Puerto Rico that provide significant, multiple benefits to the nation—its people, businesses, critical infrastructure and the environment. These benefits include flood risk management, navigation, water supply, hydropower, environmental stewardship, fish and wildlife conservation and recreation. USACE's dams are part of our nation's landscape, integral to many communities and critical to watershed management.

MAKE A DAM

Materials:

- 4 oz Playdoh or clay
- Small measuring cup with milliliters
- Water
- Pencils and paper
- Ruler with metric measurements
- Stopwatch
- Tray/container to build dam (must be able to hold water)



Your first job is to determine the measurements of a rectangular dam that will hold 50 milliliters of water, which equals 50 cubic centimeters. In other words you need to find 3 numbers that multiply together to equal 50. One possible successful design would be a dam that is 5 x 5 x 2 centimeters (width times length, times height). Only look for whole numbers, not answers with fractions.

Build and test the dams. An adult will need a cell phone, or stopwatch to calculate how long each dam holds water.

See what happens when the clay dam is overfilled or if the dam is damaged.



OUR MISSISSIPPI TRAVEL

MISSISSIPPI RIVER

Trail



Need an eagle fix?

Check out a Corps north Mississippi lake

The U.S. Army Corps of Engineers (USACE) Vicksburg District recently held its annual mid-winter bald eagle surveys at its north Mississippi lakes in January. A total of 50 eagles, along with other species, were counted across Arkabutla, Sardis, Enid and Grenada lakes in the annual mid-winter bald eagle survey at these north Mississippi lakes. Many Corps lake projects participate in January surveys to monitor the status of bald eagle wintering populations in the contiguous United States. Several hundred personnel counted the eagles along standard, non-overlapping survey routes, and this year's national count determined that populations nationwide have quadrupled in just over 10 years.

The Mississippi lakes offer ideal habitats for bald eagles, including abundant food sources and nesting areas. Resident populations can be found year-round, but visitors are encouraged to view the birds from a respectful distance and reminded not to disturb them.—K.S.

FOR MORE INFORMATION

Arkabutla Field Office: 662-562-6261
Sardis Lake Field Office: 662-563-4531
Enid Lake Field Office: 662-563-4571
Grenada Lake Field Office: 662-226-5911

THE GROUP BIKE IOWA describes the Mississippi River trail bike route through the country's heartland as the ultimate setting for a modern-day Mark Twain novel. On this, as along many other stretches of the 3,000-mile cycling route, you'll cycle within sight of riverboats and barges, through quaint river towns and past farm fields and rolling green hills. Elsewhere, the trail that starts at Lake Itasca and meanders south through 10 states rises with bluffs and ends with a view of the New Orleans skyline.

Here are just a few examples of ways you'll explore the river's beauty, geography and culture as you ride a trail that generally runs along existing highways, at times dedicated trail networks.

The Minnesota segment follows the river some 600 miles from Itasca State Park to the Iowa border. Within the 72-mile Twin Cities Metro area, the route runs on both sides of the river and within the Mississippi National River and Recreation Area. At its south, there's access to Great River Bluffs State Park. In Wisconsin, the trail runs primarily on the Great River Road, W-35, over steep bluffs with sharp drops and eventually a series of state, county and town roads. (Note: Here, fried cheese curds are a recommended snack stop treat).

Venture into Illinois, and ride from the steep bluffs in the unglaciated north around historic Galena and Quincy (site of the famed Lincoln-Douglas debates) to flatter roadways and scenic farm country once you hit Rock Island. At the state's south, you near Cahokia, a pre-Columbian settlement world heritage site most worthy of a stop. At Savanna, the trail connects to Iowa, where paved sections of road pass the riverfront areas of Davenport and leads to riverfront parks and festivals.

In the state of Missouri, make a side trip to Riverlands, the West Alton bird sanctuary situated on lands managed by the U.S. Army Corps of Engineers. A focus on wellness encourages trail use by bicycles, and a June 24 event offers birding by bike followed by a local libation. RIVERLANDS.AUDUBON.ORG/EVENTS/BIKES-BIRDS-AND-BREWS

The Kentucky portion of the trail, 65 miles long, begins at the bridge Connecting Cairo, Ill., with Wickliffe, Kentucky and continues south to the Tennessee state line and is a designated scenic byway much of the way. And the clear highlight in Tennessee and Arkansas is the trail that connects the two states by way of the Harahan Bridge. The "Big River Crossing" trail is the first permanent bike path across the Lower Mississippi River, and it affords a stunning view from straight down the middle.

In Mississippi, a highlight ride takes on you an 18-mile loop past fields, river overlooks and Civil War battle sites within the Vicksburg National Military Park. And in Louisiana, focus on cities including Baton Rouge, site of a beautiful river trail, and New Orleans. There, the trail runs across the main river levee for more than 20 miles and New Orleans itself offers a host of fun bicycling tours including night rides on cycles that glow.—K.S.



River exhibit lives on

The "Mighty Mississippi" exhibit at the Missouri History Museum comes to a close in early June. But the exhibits about the rich history and cultural impacts of the Mississippi River will remain accessible to the public thanks to a partnership agreement with the U.S. Army Corps of Engineers.

Digital and hard-copy infographics from the exhibit will be used by the U.S. Army Corps of Engineers for public display in temporary visitor center exhibits, educational programs, outreach events, and on the U.S. Army Corps of Engineers social media platforms.

"Education on the significance of the Mississippi River and how we can all be environmental stewards is at the heart of the Mighty Mississippi exhibit," said Katherine Van Allen, Managing Director of Museum Services for the Missouri History Museum.

By 'recycling' some of the exhibit's most popular displays, the Missouri History Museum and U.S. Army Corps of Engineers are both practicing the sustainability spirit of recycle-re-use while simultaneously launching an important partnership focused on the river's environmental restoration needs through a joint public education effort, says Col. Kevin Golinghorst, commander of the Corps' St. Louis District.

The exhibit examines the role of the U.S. Army Corps of Engineers in shaping the river in the Confluence Area in which the St. Louis region sits. Some of the many video interviews featured in the exhibit explores the U.S. Army Corps of Engineers' reestablishment of lost riparian habitat in the river's floodplains. One of the more than 200 artifacts on display in the current exhibit is also the pilothouse of the steamer *Golden Eagle*, the last wood hulled packet boat on the Mississippi River. The pilothouse is one of the largest artifacts in the Missouri Historical Society Collections and was salvaged from the sunken *Golden Eagle* in 1947 by the U.S. Army Corps of Engineers.



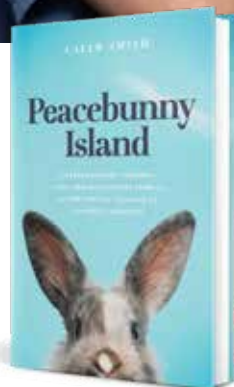
US Army Corps
of Engineers

US Army Corps of Engineers, St. Paul
PM-E Bluhm
180 East Fifth Street, Suite 700
St. Paul, MN 55101

PRSRT STD
U.S. POSTAGE
PAID
GREENVILLE, MI
PERMIT NO. 338

My MISSISSIPPI

PHOTOS COURTESY CALEB SMITH.



Caleb Smith holds one of his many exotic bunnies trained as comfort animals. His new book will support the work.

MORE
Peacebunny
Island.com

Caleb Smith, 16, owner of 22-acre Peacebunny Island on the Mississippi River, founder Peacebunny Island's Inc. therapy program with rare breed rabbits, and author of "Peacebunny Island: The Remarkable Journey of Rescue Rabbits, the Boy Who Saves Them and What They Can Teach Us About Hope and Kindness"

"The whole business originated from a Shark Tank-like pitch to my parents when I was eight. There were 362 rabbits on Craigslist after Easter in the Twin Cities, and I wanted to prevent the abandonment cycle. I started a foster program and did education with rabbits so people could get their 'bunny fix.' Things evolved. Eventually I had the idea of getting an island. I thought, 'This would be great. Rabbits won't swim off and land predators won't get on. It could be a place where we could train them.'

"I had to raise funds, so I started pulling out business cards and found an investor, and I pay a mortgage by going to many different events and now through royalties for my book. For a biodiversity class, for example, we'll bring between eight and 14 rabbits, all different breeds, and have people interact with them. As we get into middle school age we talk genetics and reproduction. We go into Senior Centers and memory care facilities and get people thinking about their childhoods and what they remember about rabbits.

"Another idea started from seeing comfort dogs in action at Sandy Hook, seeing the power of presence. I thought, 'I have rabbits. If we trained them, they could do the same things too.' It was adding one more layer. A couple of months ago, I went to a child's funeral and brought the rabbits. The child had a lot of brothers and sisters and cousins, and the rabbits met them each where they were in their grief, just listening and snuggling.

"On my five Minnesota islands in the Mississippi River is where most of the training has happened, training the rescue rabbits we have and the Kinderbunnies; they're eight weeks old, weaned but not full-grown yet rare breeds. It's a super cool rustic island where there are no structures. It's just another place for them to go and adventure; the benefit of the island is if they hop down, they aren't going to go anywhere, so we can just let them play rather than chase.

"To me, My Mississippi is home, a place to relax, this calming spot for me, my friends and the rabbits. It's a place where we can explore and venture and learn, be a kid and run around and just be." —K.S.



Send story ideas to editor@ourmississippi.net

To subscribe to our e-edition, read past editions and find river-related education materials, visit <https://www.mvd.usace.army.mil/Media/Publications/Our-Mississippi/>

Questions or Comments:

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

Insiyaa Ahmed, St. Louis, Mo. 636-899-0076	Elizabeth Burks, Memphis, Tenn. 901-544-0761
Vanessa Alberto, St. Paul, Minn. 651-290-5388	Katelynn Dearth, St. Louis, Mo. 636-899-0086
Kevin Bluhm, New Orleans, La. 651-290-5247	Angie Freyermuth, Rock Island, Ill. 309-794-5341

Mailing list changes:

Kevin Bluhm, 651-290-5247

To read online:

<https://www.mvd.usace.army.mil/Media/Publications/Our-Mississippi/>
Click "Subscribe here" to subscribe via email.

Contributors this issue:

EDITOR/

LEAD WRITER

Kim Schneider

GRAPHIC DESIGNER

Diane Kolak

CONTRIBUTING WRITERS

Insiyaa Ahmed

Michael Andre

Billeaudeaux

Debra Dietzman

Jenny Peters

Richard Stoff



US Army Corps
of Engineers