

Our Mississippi



US Army Corps
of Engineers

PARTNERING TO KEEP
AMERICA'S RIVER GREAT

MISSISSIPPI VALLEY DIVISION • FALL 2020



BEN FORD

Live like a lockmaster on the scenic Mississippi

Enjoy views like this near the last lockmaster's home in its original location, Guttenberg, Iowa.

Lockhouse renovations will help the U.S. Army Corps of Engineers tell tales of Great Depression hardship—and of the sophisticated lock and dam system that arose from New Deal labor projects.



The lockmaster's home at Lock and Dam 10, prior to renovation.

THE TABLE'S SET FOR TEA inside the two-story Georgian Colonial Revival home, built in the practical style of the country's Great Depression. The only ornamentation is the Irish-green shutters, the breezy screen porch and the fact that it's just steps from the U.S. Army Corps of Engineers' Lock and Dam 10 on the Mississippi River.

But the value of this home—and the restoration work being completed this fall—goes well beyond either its look or location within Guttenberg, Iowa, one of America's prettiest river towns.

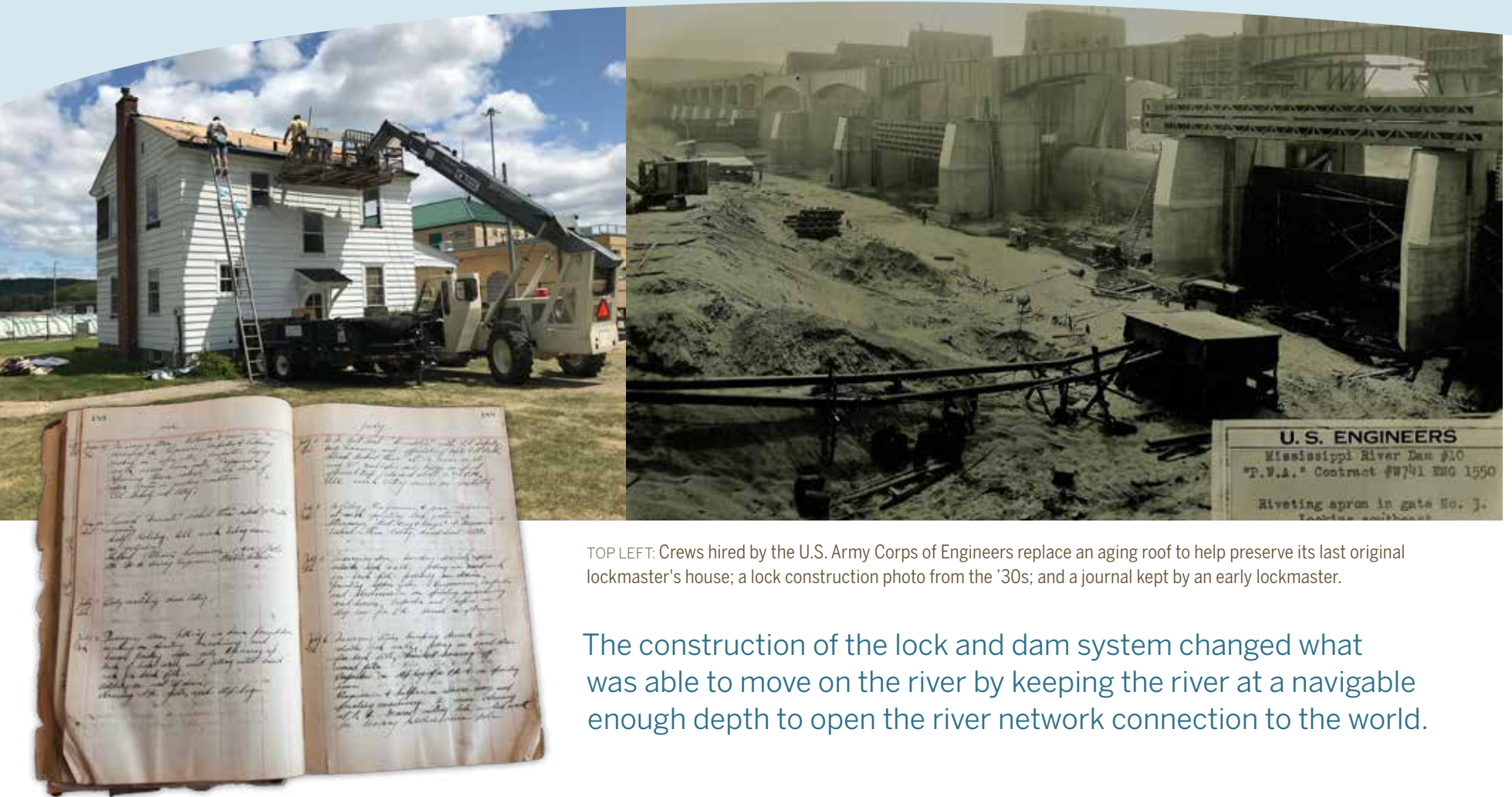
This is the only remaining lockmaster's home still in its original location at a Mississippi River lock and dam. When renovations are complete and the home is re-opened this spring, the museum now run in conjunction with the Guttenberg Heritage Society will further bring to life one of the country's largest ever public works projects as well as the Great Depression era in which the river's modern 9-foot channel system was originally built.

"This house is a symbol of the cultural history and heritage of not only the 1930s Great Depression, but of the construction of the lock and dam system on the river," says Corps archaeologist Vanessa Alberto.



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.

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TOP LEFT: Crews hired by the U.S. Army Corps of Engineers replace an aging roof to help preserve its last original lockmaster's house; a lock construction photo from the '30s; and a journal kept by an early lockmaster.

The construction of the lock and dam system changed what was able to move on the river by keeping the river at a navigable enough depth to open the river network connection to the world.

When Franklin Roosevelt took office in 1933, more than 10 million Americans were unemployed. Over the next eight years, the Roosevelt Administration poured hundreds of millions of dollars into public works projects across the country. Though many agencies and individuals scrambled for a part of Roosevelt's new deal, proponents of a major new lock and dam project got in line early, according to a National Park Service history of the locks.

The Corps had already been seeking a way to provide consistent navigation on the Upper Mississippi River, and the New Deal offered the potential solution and for funding. In 1933, the federal government committed more than \$30 million to the Upper Mississippi River, the first in a series of investments that would total more than \$164 million by the time the project was complete. In 1940, the last of the lock and dam system was finished, and the Upper Mississippi River had been tamed for commercial barges.

Lockmasters at the then 26 locks and dams were charged with making sure all went well as vessels toting goods up and down the river went through navigation locks. Then, and throughout the years that followed, the person's job would be to schedule maintenance and help with lock and dam operation. In the beginning, lockmasters literally lived the jobs much like a lighthouse keeper of the day did—constantly on watch, available to take quick action in case of a river-related emergency day or night.

That you were never off duty likely added another layer of stress to an already challenging job, notes current day lockmaster Brian Sipos.

"You're living next to the equipment you're working on, living with the people you work with. You'd always be hearing horns to let the boats out, always hearing the towboats call in, always seeing the river conditions."

Pearl Walker was the first lockmaster to live on site at Lock and Dam 10, and his assistant lockmaster resided in a nearly identical house next door, Alberto says, with a garage built between the two houses. Several lockmasters and assistants would follow, all the way to 1990 when the last lockmaster moved off site.

The same things, people and goods, have traversed the Mississippi River since Native Americans were the only ones that traveled the river by canoe, Alberto noted, but the construction of the lock and dam system changed what was able to move on the river by keeping the river at a navigable enough depth to open the river network connection to the world. Through the early tenure of Pearl Walker and his compatriots, though, traffic grew slowly.

The Roosevelt administration had limited agricultural production to boost prices, so grain started as a minor part of river traffic. But WWII boosted commerce with the river as a shipping hub for raw material, oil and coal. By 2018, nearly 16 million tons of commodities passed through Lock and Dam 10. That included nearly 8.5 million tons of farm products such as corn and soybeans. It's estimated that industries making the shipments

saved approximately \$430 million by using the inland waterways instead of overland shipping methods.

When the last lockmaster moved out of the on-site lockmaster's house in 1990, the Corps partnered with the heritage society to operate it as a museum, one that has attracted visitors from around the world. But like most older homes, it was falling into disrepair. Renovations replaced the aging roof and siding and shored up the chimney. Lead paint was removed, and new exhibits will be added to further tell the story of its importance and the era before it's reopened to the public in spring.

Alberto hopes the museum can go well beyond being a visual reminder of the era to even better tell the story of Depression-era life and the importance of the New Deal-era lock and dam construction.

"The 9-foot channel project supported navigation, and it was especially important at lock and dam 10 and up," she said. "In the very northern part of the river there were really strong fluctuations in water level. What forced the hands of policy makers was the Great Depression and the New Deal. With Roosevelt saying we need to get people back to work, the Corps got funding and could say, 'Let's get these things done.'"

Dangerous jobs led to safety push

When U.S. Army Corps of Engineers historian Alberto looks at old photographs of the construction of the Mississippi River locks and dams in the 1930s, what stands out is what wasn't in them: hard hats, brightly colored construction vests, steel-toed boots.

"When you look at the photos, you'd be shocked by people showing up in regular clothes, doing these very dangerous jobs," she says.

A couple of decades ago, Corps historians interviewed some of these early construction workers and heard stories of colleagues that were injured or lost on the job. They also heard of the quick progression of safety efforts and how norms shifted over time.

The Corps' St. Paul District, responsible for construction of the river's northernmost locks, published a monthly periodical "Old Man River," while the Rock Island District published a similar one called "The Safe Channel." Both documented construction progress but had the stated mission of promoting safety among district and contractor's employees.

The Corps districts also offered classes that demonstrated use of hard hats, safety boots and kapok life vests. District engineers displayed charts noting the number of accidents at each lock and dam project, and the number of man-hours lost to accidents. As the projects neared completion, concern over safety did not diminish. In fact, the continuation of safety meetings helped influence safety norms elsewhere across the country. The importance of safety in the Corps' workforce hasn't gone away, Alberto said, but has only become more prevalent. This is reflected in the most recent award presented to the Mississippi Valley Division, St. Paul District, for the Chief of Engineers Safety Award of Excellence for fiscal year 2019. —K.S.



Brian Sipos, lockmaster

The river's fish population is healthy—until invasive carp arrive



Sport fish populations on many waters in the Upper Mississippi River Basin have increased 35 percent over the past two decades. Elsewhere, sport fish numbers have declined approximately 30 percent. What's the difference?

Invasive carp.

Using 20 years of data from the Long Term Resource Monitoring (LTRM) program of the U.S. Army Corps of Engineers, researchers discounted the possible differential effects of flooding, suspended solids and water temperature. Then they identified one key variable: the arrival of the voracious, lifetime consumers of the same tiny zooplankton and phytoplankton that support larval and juvenile sport fish until they are large enough to eat other prey.

"These invasive species are having a tremendous influence on the lower reaches of the river," said John H. Chick of the University of Illinois Urbana-Champaign. He is based at the Illinois Natural History Survey's Great Rivers Field Station in Alton, Ill.

Chick was an author of the study, "Invasive silver carp is empirically linked to declines of native sport fish in the Upper Mississippi River System," published in the journal *Biological Invasions*.

The populations have been followed through a standardized "catch per unit effort" (CPUE) protocol that analyzes fish netted from the water during an electrofishing sweep.



John H. Chick

Sampling data from Mississippi River Pool 4 (Lake City, Minn.), Pool 8 (La Crosse, Wis.) and Pool 8 (Bellevue, Iowa) identified increased numbers of 19 species of fish. These species likely have benefited from the low levels of sedimentation found in these pools.

"Most people who work on the Upper Miss think that is a major reason why aquatic vegetation flourishes in those reaches and is basically absent in the lower three reaches we monitor," Chick said.

Sedimentation levels build as the Mississippi absorbs the Des Moines, Illinois and Missouri rivers, but increased sedimentation alone does not account for declining fish populations in the other monitored locations. The project counted fish in the La Grange Pool on the Illinois River (Havana, Ill.), Mississippi River Pool 26 (Alton, Ill.) and an open reach of the Mississippi (Cape Girardeau, Mo.).

"Only silver carp abundance had a direct negative relationship with the abundance of adult sport fish," the paper concluded. "Our analyses suggest that the mechanism for this decline may be competition for zooplankton between silver carp and larval/juvenile sport fish. Silver carp filter out phytoplankton but they consume a lot of zooplankton as well."

Zooplankton are tiny animals that include crustaceans and rotifers. Phytoplankton consist of various microscopic algae.

"Silver carp likely adversely affect adult sport fish by reducing the abundance of zooplankton both through direct consumption and by competing with zooplankton for phytoplankton," the paper explained. "The observed reductions in adult sport fish (may) result from competition for zooplankton during early life stages of sport fishes."

If not for invasive carp, how might fish populations be faring in the downriver waters?

"That is a hypothetical question, so it is hard to say," Chick said. "But without the invasive carp we think they would be in better shape. Because of the sediment we have in the lower reaches, I doubt they would be comparable to what we have in the upper reaches."

Electrofishing

The electrofishing studies apply 3,000 watts of pulsed direct current into the river during a standard 15-minute sweep. Fish within range of the electric current float to the surface.

"They will be in a state of stun but they are not unconscious," Chick said. "We dip them out and put them in the tank. The vast majority of fish have recovered and are swimming around in the tank when that run is over."

The fish are returned to the river after they are counted and analyzed. Electrofishing, particularly on an enormous flowing river, cannot provide estimates of fish populations but can identify trends, he said. —R.S.

Long-Term Resource Monitoring data fosters rare research opportunities

Through its Long-Term Resource Monitoring Program, the U.S. Army Corps of Engineers has been monitoring fish communities and water quality long before invasive silver carp became established in the Mississippi River system. That provided a unique opportunity to study the precise effect of this voracious species—and others.

Through its systematic monitoring over time, the program develops a broad understanding of the condition of the river and its structure and function," says Jeff Houser, the science director. "That is the big-picture context within which decisions about where, when and how restoration projects are implemented and management actions are taken."

While other agencies monitor fish and water quality, this is unique in the way it monitors the entire fish community rather than a target species, adds John Chick of the University of Illinois Urbana-Champaign and Illinois Natural History Survey. The only other restoration, monitoring and research program partnership that is comparable in the U.S. is the Florida Everglades restoration program.

LTRM is a federally-mandated component of the Upper Mississippi River Restoration (UMRR) Program. UMRR joins the Corps of Engineers with the U.S. Geologic Survey, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, U.S. Department of Agriculture Natural Resources Conservation Service and the states of Illinois, Iowa, Minnesota, Missouri and Wisconsin.



**Elliott Stefanik, Supervisory Biologist,
U.S. Army Corps of Engineers, St. Paul, Minnesota**

"There was a river that ran through my town, and I went fishing every chance I could. I liked it so much that when I was ready to graduate from high school, I tried to figure out how I could do something related to fish as a career.

"At the Corps, we spend a lot of time improving backwater fish habitat, which is really exciting. We also have projects where we're trying to not only minimize flood impacts, we're doing mitigation and trying to improve aquatic habitat and fish passage.

"When you're a fisherman you learn things about fish behavior that can help you as biologist. As a biologist, you learn tendencies and habits of fish and how they behave that also helps you as a fisherman. It's an interesting blend, the observations you get in both hobby and job that come together. It opens your eyes to how complex and diverse the river is and how fish tend to show up where they want to. What they do is not always written in textbooks.

"My Mississippi is where I go to escape, to enjoy fish and wildlife, and to see so many values that the river provides to so many people."



LEFT AND BELOW: Photographer David Freese drove the Mississippi from the headwaters to the Gulf, capturing its many twists and bends, its spectacular bird life and the touching relationship between a resident of the National Eagle Center and its handler.



David Freese, photographer, chronicles the “third coast” in new book on the Mississippi River

Some people actually call the Mississippi River the “third coast,” and photographing it allowed me to continue exploring themes such as coastal erosion and climate change, which were part of my prior two books (West Coast: Bering to Baja and East Coast: Arctic to Tropic).

I started at the headwaters up in Lake Itasca, Minnesota, and ended at the Gulf of Mexico. I was fortunate to get on the tow boats and barges that are so associated with the river and flew with a lot of skilled pilots for aerial shots. My wife and I also did two big road trips. We put 8,000 miles on the car and just enjoyed it so much. The people are terrific, the towns are charming, but there are problems, and sometimes, for economic reasons, there is a hesitation to deal with them.

There are always surprises when you’re photographing. I knew I wanted the American eagle represented, with its long history on the river. I ended up photographing Al Cooper, who for years has been the caretaker of a rescued eagle

named Angel, at the National Eagle Center in Wabasha, Minn.

When I first took the photo, I just wanted to capture the connection between man and this majestic bird. But since then, with all the protests that are going on in this country, and the treatment of African Americans, that photograph has taken on a different meaning for me: You have a proud black man and that eagle—the symbol of America—looking each other in the eye. It’s certainly one of my favorite photos in the book.

My lasting feeling is that the river is American history. It’s a simple statement, but the history is complex — the good and the bad, the extremes, the paradoxes and the contradictions. Most Americans, I think, are so naive about the river. I’ve told my friends, if you want to take a really unusual, extraordinarily interesting road trip, drive that river north to south or south to north, and you will be astounded. —L.H.

Finding a future home for Illinois River sediment

The Illinois River flows steadily past steep forested bluffs and flat floodplains in the pool behind the Starved Rock Lock and Dam. Barges and tow boats ply these waters, moving an average of 19.5 million tons of grain and other cargo annually. Straddling the river at River Mile 239 lies the city of Ottawa, Illinois, a processing hub for the agricultural fields of north-central Illinois. Here, the U.S. Army Corps of Engineers faces the challenge of Bulls’ Island, a sweep in the river that perennially fills with sediment.

The Corps’ mandate to maintain a nine-foot deep channel requires constant vigilance to keep river navigation flowing smoothly. Annually, Corps or contract crews remove an average of 14,600 tons of sediment from the Bulls Island and Milliken Creek reach. But where does that dredged material end up?

The existing material placement site near Ottawa has nearly reached its capacity. This summer, the Corps solved that problem too, at least for the next 20 years, with the adoption of a new Dredged Material Management Plan for Bulls Island and Milliken Creek.

The plan expands the existing site on the north bank of the river by 48 acres. Acquisition of the additional property is already underway. The expanded site could be operation within one to three years.

Arriving at this plan was a careful and complex process, according to Breann Popkin, Dredged Material Management Program manager for the Corps’ Rock Island District. The study team estimated the likely volume of dredged material and looked for sites that met both the logistics of the dredging process and environmental factors. Any new locations needed to avoid bankside areas that routinely flood and needed to reduce impacts on cultural and environmental resources, including endangered species.

Efficient operation was another important consideration. Any new site had

to be accessible for either mechanical dredging, with a crane, scoop and barge, or hydraulic dredging, with pipe and suction pump, to reduce operational costs.

The new site has the added bonus of being located on a reclaimed surface coal mine. “The site had been so disturbed in the past, there were not very many significant environmental resources left. Placing dredged material here is a good use for a site that was not be appropriate for many other uses,” Popkin said.

Community connections were also critical in developing the plan. “We make a special effort to coordinate. That process includes holding public meetings and reaching out to state, federal, and local governments and tribal nations,” Popkin said.

For this plan, that coordination resulted in a buffer on the north side of the new site being added to reduce aesthetic or other impacts on adjacent residential houses.

As development of this new site is underway, Popkin is looking for ways to extend its life and reduce future environmental impacts through more “river-to-reuse” projects that put dredged material to commercial or industrial uses so it’s a resource rather than a burden. For example, the Corps’ Engineer Research and Development Center is working on a “manufactured soil” that uses dredged material as one of its components.

“Overall, sediment is an issue and will continue to be an issue,” Popkin said. “Ultimately, the best long-term plan is to try and actually reduce the amount of sediment entering the system, because dredging is just a bandage. There are definitely best management practices that different agencies could do to reduce the sediment inputs to the river and thereby reduce the quantities that are required to be dredged and also the environmental impacts of that dredging.” —D.D.



Spot some shorebirds

Migration mania takes place each fall on the Mississippi River; here's how to spot some migration super-athletes.

Shorebirds are the class of critters that even novice birders likely know by the way they run on spindly legs along shorelines and mudflats, especially during migration seasons. Many have fun names like snipe and sandpiper and dowitcher, and they pass in large numbers all along the Mississippi River. The trick in both spotting and counting is in the identification.

"A lot of times they're tiny, and they're way out there," says Ryan Brady, a wildlife biologist at the U.S. Army Corps of Engineers Rivers Project office. "It's hard to tell what species they are depending on how far out in the wetland they are, and sometimes they're hidden by vegetation."

The challenge makes for prized spotting by avid birders, he says, while some species are fun spotting fodder for birder beginners. Because they have molted from breeding plumage in fall, identifying them means looking at the color or shape of the beak, the color of the legs and behavioral clues. These birds are migration athletes of the most impressive kind. Some migrate at the altitudes of jets, while others fly their entire migrations speeds approaching more than 60 mph. The Semipalmated Sandpiper, which weighs less than an apple, makes nonstop flights of 5,300 kilometers from Canada to South America—the aerial equivalent of 126 consecutive marathons.

They do make frequent stops at spots along the Mississippi River, most favoring fresh mud where water has recently receded. Find them along the lower river into November, upper river into early October. Here are a few of Brady's favorites to spot this fall. —K.S.



AMERICAN AVOCET

This bird, one to two feet in length, is best identified by its bill. The avocet's beak is black, pointed and slightly upturned. (The only other shorebird with an upturned bill is the black-necked stilt, distinguished by its black and white head and neck.)

This shorebird's legs are a pastel gray-blue, leading to its colloquial name, blue shanks. Its head and neck are a brassy orange during breeding season, fading to white and gray in fall. Identifying them means taking time to watch them probe through the mud, Brady notes. They sweep their beaks from side to side as they troll through shallow water. Listen, too. Their call is often described as a shrill and melodic "bweet," rising in tone.



SPOTTED SANDPIPER

Don't necessarily rely on looking for spots to identify this birdwatching favorite. They do have bold, dark spots on their undersides during breeding season, but come fall, they lose most of their spots. Instead, you'll know these mid-sized shorebirds by their movements. In flight, they fly low over the water with stiff-winged bursts of a single flap then a glide. Once they land, find these picture-perfect birds at the water's edge, where they're known for the way they bob their rears up and down. They also defy sex role stereotyping. The female Spotted Sandpiper is the one who establishes and defends the territory, while the males raise the young.



GREATER YELLOWLEGS

Seeking out the Greater Yellowlegs requires a little bit of effort and good timing, Brady notes. Like most shorebirds, Greater Yellowlegs frequent ephemeral mudflats and shallow marshes during migration. Look for them in spots where floodwaters are receding and fresh mud is exposed. Once you find them, though, you'll know them by the way they run through the flats on their distinctive yellow legs. Bring your scopes, though. These are often referred to as the "marshpiper" for the habit of wading in deeper water than other sandpipers. Or just listen. They have an annoying alarm call that sometimes scares the other shorebirds away.



My MISSISSIPPI



**Juita Martinez, Co-organizer,
Black Birders Week, Louisiana**

"My Mississippi is a creator of barrier islands. Barrier islands are eroding at a very rapid pace because there's not enough sediment deposition happening [due to diversions from the Mississippi River]. Currently I am studying the effects of barrier island restoration on brown pelican breeding populations in coastal Louisiana.

"Billions of dollars have been spent to restore coastline to protect human lives and human infrastructure in the event of a hurricane or storm surge. What I'm doing is comparing restored islands versus unrestored islands, both of which are used by pelicans during the breeding season. I am seeing what the differences are in nest success, hatch success, and fledgling success, as well as doing vegetation and elevation surveys and looking at how pelicans are utilizing the islands as a whole.

"My preliminary data does show that restored islands have higher nest success than unrestored islands. These big islands tend to be slightly more flood resistant; they are more resistant to really big storm surges and hurricanes; they are just more stable. At the end of the day, all the barrier islands that we save are helping mitigate the storm surges but at the same time conserving breeding habitats for the birds.

"I've always been interested in wildlife since I was a little kid. I thought I wanted to be a veterinarian. A National Science Foundation Research Experience for Undergraduates completely changed my world. I got exposed to what it was like to be a real scientist.

"When I was a kid, there was no Black Steve Irwin. I never saw someone who looked like me in the media. I never had a black teacher. I never had a black professor. I barely had any Black students in any of my classes. So just to see that there were actually so many of us out there [during Black Birders Week*] was amazing. We have a platform and a voice. People actually cared to listen and be great allies. And we saw people out there educating themselves, which was the whole point. It was awesome."

FOR MORE:
[birdnote.org/
black-birders-week](https://birdnote.org/black-birders-week)

Partnering for resilience in the floodplain forests of the Upper Mississippi



Team member plants the project's first tree

Planting trees in a Mississippi River floodplain forest always involves uncertain weather and water conditions. But the partners trying to plant trees this spring for a climate change adaptation study in a Minnesota urban floodplain were challenged with pandemic-scrambled logistics and a planting schedule warped by social unrest in the Twin Cities.

"It's ironic that doing a project that is about adaptation has demanded us to be so adaptive," Angie Tillges, a Great River Passage Initiative Fellow with the city of Saint Paul. The Saint Paul Parks and Recreation Department hosts the study in its Crosby Farm Regional Park in support of the city's city/river connection master plan and climate change action plan.

Adaptation will be vital to addressing current concerns about the Upper Mississippi's floodplain forest health. Dutch elm disease has eliminated much of the region's elm, and emerald ash borer is now eliminating its ash. Even the floodplain's signature cottonwoods are struggling to regenerate.

"With the Mississippi River being such an important waterway and area for recreation, the loss of tree cover here is a huge concern. This project is

an opportunity to consider how we manage floodplain forests for ecosystem services," said Leslie Brandt, a climate change specialist with the U.S. Forest Service and Northern Institute for Applied Climate Science.

Located on the Mississippi River just downstream from Lock and Dam No. 1, the study will track the growth of 1,200 trees planted in 24 0.1-acre plots. Each plot is either a continuation of current conditions, a resilience treatment designed to rebound from disturbances, or a transition treatment to a warmer, wetter future. The transition treatment includes some species, such as sycamore and swamp white oak, currently are found further south along the Mississippi.

The Crosby Farm project expands an international network of Adaptive Silviculture for Climate Change studies, all seeking to develop strategies that help managers address changing forest conditions. It is also the first to be located in an urban floodplain.

Brandt said the perfect mix of partners is involved to make the study happen. In addition to the City of Saint Paul and the U.S. Forest Service, partners include the National Park Service's Mississippi National River and Recreation Area, Mississippi Park Connection, University of Minnesota, Colorado State University, and Northern Institute of Applied Climate Science. Initial funding for this work came through the Wildlife Conservation Society and its Climate Adaptation Fund through a grant by the Doris Duke Charitable Foundation.

"I cannot be more grateful for the people on this partnership and how wonderful they are," agreed Marcella Windmuller-Campione, Assistant Professor of Silviculture in the University of Minnesota's Department of Forest Resources. She and her team of researcher Mike Tuma and undergraduate assistants collect scientific data and will analyze the results. As of the end of August, they have completed baseline measurements and installed protective deer fencing. In October, she will remeasure tree height and diameter and assess how each individual tree is doing. Annual data collections plans are set for the first five years for this 20-year project.

The project is also succeeding on one of its other goals, building community connections. Mary Hammes, Environmental Stewardship and Volunteer Manager for Mississippi Park Connection, organized 200 volunteers to plant trees. "People were really appreciative of the refuge and peace that Crosby has to offer. It was a gift, especially as people were feeling powerless," she said.

Windmuller-Campione is excited to have a new forest in her backyard for research and extension teaching. The City of St. Paul is planning events and signage to engage park users with learning about climate change and the value of floodplain forests. Mississippi Park Connection is hoping to introduce people to its "new neighbors" through an art installation that brings potted trees into the community. Tillges said the city also wants to explore other ways this project with its real scientific significance can connect people and build consciousness for the community.

The partners anticipate continued change throughout the life of the Crosby Farm adaptive silviculture project. But that is not surprising for a project with "adaptation" in its name and operating style. —D.D.

Studying the forest foundation

Corps biologist studies soil for better floodplain forest restoration success.

A recent study showed that trees grow better in their home soils, even after you change variables like temperature and rainfall. That helped to inspire Corps biologist Aaron McFarlane who recently completed a six-month research stint at ERDC University, an intensive study program offered by the U.S. Army Corps of Engineers Research and Development Center in Vicksburg, Mississippi.

"The major effects we're thinking we might see is that having those right soils and right biotic components in soils can really help establish the resilience to climate change we're looking for in our system," he said.

McFarlane is studying floodplain forest systems, looking specifically at the difference in the soils of forests that have been established over the centuries by nature and those the Corps has built through various restoration programs. The goal is to apply the findings to projects across the Mississippi Valley Division and potentially nationwide.

"We're trying to create soils from what we have, but there are some differences from soils created over hundreds of years," he said. "We've got some data on it, but not a whole lot."

McFarlane's study focus has been microbial communities and fungi—the life within the soils.

"Many fungi form symbiotic relationships with the trees in the forest and other plants. These help trees get nutrients out of the soils, help them get water in periods of drought, and even help move nutrients from adult trees to younger saplings."

The biggest gap in the research is specifically in floodplain forest communities, those that have to cope with flooding in some cases, excess moisture in most. Might there be different organisms helping in these forest soils? "It jumped out at me," McFarlane said, "as something we could get more information on."

Acceptance into the ERDC University program gave McFarlane access to ERDC researchers and laboratories, where he can get analyses on physical and chemical characteristics of soil samples he gathered at several sites, things like present nutrients and enzymes. The experts are also analyzing samples for DNA sequencing and signs of bacteria and fungi. "They're figuring out what's in the soil, linking soil characteristics and helping to influence our understanding of floodplain forest soil." —K.S.



Aaron MacFarlane



U.S. Army Corps of Engineers provides critical support during Hurricane Laura

WHEN HURRICANE LAURA

struck Lake Charles, Louisiana, U.S. Army Corps of Engineers, Mississippi Valley Division response and recovery teams were already in place to execute the critical mission assignments assigned by the Federal Emergency Management Agency.

Damage caused by the hurricane was worse than Rita, according to some of the locals. And as of Sept. 7, approximately 160,000 people in Louisiana are still without power.

In the Calcasieu and Cameron parishes, there were 12,000 spans of downed wires and 3,000 damaged transformers.

Additionally, more than 140 overhead transmission lines remained out of service into September, and Entergy reported that they needed to rebuild transmission lines running into Lake Charles completely.

Damages sustained in southwestern Louisiana warrant USACE expertise. Mission assignments range from temporary roofing and emergency power installation to supporting the temporary housing mission and conducting infrastructure assessments and provide debris removal assistance to the state.

“Just two days ago, the first of what will be thousands of temporary roofs were installed, which was done faster than ever before in terms of hurricane recovery efforts thanks to the innovative efforts and other advancements our teams have made in the last few years,” Memphis District Commander and Lead Recovery Operations Commander Col. Zachary Miller said. “As of today (Sept. 7), both contractors are on track with a ramp-up schedule and are meeting all requirements.”

The program’s purpose is to provide homeowners in disaster areas with fiber-reinforced sheeting to cover damaged roofs until permanent repairs are made. Homeowners interested in applying for temporary roofing can call toll free 1-888-ROOF-BLU (1-888-766-3258) for more information regarding this program.

Additionally, USACE also has an Operation Blue Roof in-person Right-of-Entry sign-up station at the Lake Charles Civic Center. It is located alongside Veterans Memorial Blvd/N. Lakeshore Dr. You can pull into Veterans Memorial Park where there’s ample parking. The application period expires Sept. 21.

Outside of temporary roofing, the Corps’ other primary mission is emergency power installation.

“Structures including water pump stations, sewage lift stations, hospitals, radio towers, corrections facilities... all these places impacted when a hurricane hits and are usually the first places to need power after the hurricane leaves,” Memphis District Program Analyst and Mission Specialist Sandra Hibbard said.

As of Sept. 7, USACE contractors had completed 43 installations with nine in progress, 17 assessments are ongoing, and five total deinstalls. In addition to these primary missions, Corps response teams are also responsible for supporting both the temporary housing mission and conducting infrastructure assessments.

There are nearly 200 USACE employees from more than 30 different commands officially deployed in support of this mission, 35 of those being reach-back support and remaining back in their home district but still working 12-hour days, seven days a week.

“When called upon, we are charged with helping residents return to a normal way of life,” Maj. Gen. Diana Holland, Commanding General, MVD said. “To achieve this goal, we draw on talented professionals with unique skills and abilities from across USACE working hand in glove with local and state governments. USACE is honored to support the incredible efforts led by the state of Louisiana and the FEMA.”

As a Baton Rouge native, Miller said when arriving that he would be here until the mission was complete, so residents of southwestern Louisiana should expect the same of the USACE recovery teams as well. —J.H.

For more information regarding the recovery effort, please visit hurricanelaura.la.gov.



Tab Benoit, Cajun blues guitarist and founder of the non-profit Voice of the Wetlands, Houma, Louisiana

“We live at the bottom of the Mississippi, and all the riches of everything that it carries ends up down in here in our backyard. That’s what I think gives us the uniqueness that Louisiana holds—the food and the culture and the way of life on the water. I can’t see living anywhere else. I’ve been every other place in the country and a few outside of the country and there’s no place that suits me better.

“I write songs, and the river is where I go to do my writing. I like to go sit in the Cypress Swamp and just kind of let it do the writing. Songs just flow and it’s got authenticity, it’s not contrived. The land can speak, you know? You just have to get away from people so you can hear it. In the swamp, I go out there in a boat and sit there and play for the snakes and alligators—and it seems like they just sit there and enjoy listening to the music.

“But we’ve got a problem here in the Louisiana wetlands; we’ve got to find some kind of balance. I think that that’s what we’re missing here, is the idea of balance. In the late 20s and early 30s, they started leveeing the river, to keep the river channel deep enough for shipping. The river is always trying to shallow itself, by dropping the sediment as it carries it down, all the way from Canada to the Gulf. And all that sediment, as soon as it hits open water, it loses speed and falls and it tries to create barrier islands. And that’s what is out of balance nowadays. When you take the river and you channel it out of the Delta, the Gulf reclaims everything that the river has built over the years. So that’s where we are right now. We have erosion happening from the river not being able to replenish the Delta.

“All I’ve been trying to do (through Voice of the Wetlands) is try to find ways of getting fresh water back into the Delta where it was before. I’ve always pushed for good water control structures in there. We don’t have to flood anybody, because just a trickle of fresh water will at least stop erosion. That may not start building land, but it will at least let enough fresh water out to knock down the salinity of the Gulf and keep the grass growing and if you keep the grass growing, that rebuilds marshy areas.”

“When anyone asks me, ‘Well, what can I do?’ I’m like, ‘You know what, you can go find out some things that are going on in your river backyard and you will help my backyard. Go to a city council meeting where you have work on it locally, and you will be working on the coast of Louisiana.’”

Partnering to bring back the quail

In a creative new partnership, the U.S. Army Corps of Engineers is working with the Black River chapter of Quail Forever to manage a flood-control reservoir area around Wappapello Lake for quail (and other wildlife) habitat.

“We actually started working on this area to try to restore it to old field habitat, just to have a different type of ecosystem on the project,” said Wappapello Natural Resources Specialist Eric Lemons. “We have lots of open land with farming, and we’ve got tons and tons of forest, so this area we want to manage more as old field growth.”

The quail habitat restoration project was the perfect fit for the local Quail Forever chapter which was seeking to put its money to work in local lands, said the group’s Corey Tucker. The management plan involves 640 acres in the Asher Creek/Blue Water area north of Highway KK and includes a



diverse mix of habitat, including forest and fields.

“A great thing about Asher Creek is it doesn’t flood, so most of our efforts are well over the 400-foot elevation. We can do all this work and floods won’t knock it back,” said Park Ranger Eric Limanen.

Habitat work, Limanen said, includes planting wildflowers, which are beneficial to all wildlife, mowing, disking to provide bare dirt, prescribed fire, forest stand improvement, edge feathering and more.

“It is a quail habitat restoration management plan, but it’s going to be advantageous to all wildlife down here. It should supplement quail in the future, and hopefully songbirds and any other kind of wildlife throughout the year. That’s our goal,” Limanen said.

Work began in the area about four years ago, Lemons said. It will additionally include periodic controlled burns to manage vegetation and stimulate growth.

Quail Forever has helped the project with the purchase of wildflower seeds—selected because of their attraction to wildlife, including sunflowers, tickseed coreopsis, butterfly milkweed, prairie blazing star, brown-eyed Susans and black-eyed Susans.

The goal of both the Corps of Engineers and Quail Forever, Tucker said, is to provide the best habitat for quail to get them back into the area.

The project is easily accessed by the public, and officials hope it spurs others to consider similar work.

“Anyone can come out here and look at this,” said Tucker, who described the project as a showcase area. The hope is that local landowners will join the effort to improve habitat across the state.—P.D.

This story, authored by Paul Davis, was excerpted with written permission by the Daily American Republic for USACE use only.



Revised timeline for Upper Saint Anthony Falls Lock and Dam study

Work continues this fall on the disposition study for the Upper Saint Anthony Falls lock and dam in downtown Minneapolis. The U.S. Army Corps of Engineers’ planning team, headed by project manager Nan Bischoff, now expects to release the draft study report in November 2020.

Selection of a recommended plan became a little clearer in June 2020, when the city of Minneapolis provided a letter indicating willingness to talk with the Corps about being a local sponsor of the site. The recommended alternative must be supported by the Corps headquarters, Chief of Policy and Planning. “We should still be recommending what is in the government’s best interest,” Bischoff said.

The disposition study has been underway since 2018 when Congress first directed the Corps to conduct an expedited study of Upper Saint Anthony Falls, separating it from an earlier study that also encompassed two downstream lock and dam facilities. Disposition studies are conducted on Corps projects that no longer serve their authorized purposes. In 2014, Congress ordered the lock at Upper Saint Anthony Falls to be closed following local pressure to protect the upper Mississippi River from invasive carp.

Release of the draft report kicks off a 60-day concurrent review by other agencies and the public, during which interested parties can share their views. Current outreach plans include a virtual public meeting to accommodate public health considerations. “I would like the public to start tuning in during the November to January timeframe after this report comes out and, maybe, to consider how this [site] might or could be run with little or no Corps of Engineers presence,” Bischoff said.—D.D.



Bank Grading Unit paves way for commerce, safety

If you’re not familiar with bank grading, it’s kind of like getting a gravel road ready to be paved. The U.S. Army Corps of Engineers’ Bank Grading Unit moves in to prepare the river

bank to the design grade and elevation needed to contain and hold concrete mattress and upper bank paving.

Concrete mattress is what keeps the river from meandering and creating its own path, which is what the mighty Mississippi River has done in years past.

The equipment used to ‘grade’ the river bank is a vintage 1949 barge mounted Bucyrus-Erie dragline with a 183 foot boom and a 15 cubic yard bucket. Additional earthmoving capacity is provided by a compliment of bulldozers.

Memphis District Commander Col. Zachary Miller recently visited Island 68, a project site in Arkansas, where he reviewed progress made at the site particularly susceptible to erosion in moving water.

“The soils in the area are very unstable and highly erosive,” said Project Manager and River/Civil Engineer Cole Stonebrook, he said. “We are addressing a large bank failure by grading irregularities in the bank alignment to a smooth straight alignment. The Grading Unit is grading the banks to a one on four slope, which requires moving 220,000 cubic yards of material.”

Stonebrook said this specific project is 2,900 feet long and will be completed with a budget of \$9.4 million. In addition to this location, he said there are four other locations in the Memphis area of responsibility where the Mat Sinking Unit will be placing concrete mattress this year.

“We work closely with navigation industry to address problem reaches in our district,” Stonebrook said. “If this bank failure in the revetment was left alone, it would continue to grow due to the swift velocities in the reach, and the channel alignment would become a major hazard to navigation. We also work closely with the landowners in the area and environmental agencies to obtain all clearances needed before construction begins.”

The U.S. Army Corps of Engineers has been completing revetment operations since the 1800’s, but started using the current method of revetment in the 1940s.—J.H.

The legacy of Emma Big Bear

She did it her way, and always beside her beloved “Father of the Waters”



If you find yourself along the “Father of the Waters,” the name the Ho-Chunk Native American nation called the Mississippi River, up in the northeastern corner of Iowa, then you’re sure to hear about the enduring legacy of Emma Big Bear Holt. The artist whose handmade baskets and beaded jewelry are still prized more than 50 years after her death is also remembered as the last full-blooded Native American to live a traditional life in this part of Iowa anchored by the mighty river.

Why is Emma Big Bear still celebrated across this region—in a foundation that bears her name, an annual event and a trail featuring one of her bronze statues?

As Rogeta Halvorson of the Emma Big Bear Foundation explains, “Emma touched so many lives around here. She was really someone special, who had a legacy that’s certainly lived on a long time after she’s been gone.” The foundation uses that legacy to preserve traditional native crafts and tales of the Ho Chunk people, many focused around Emma.

Many knew her by the way she spent most of her 99 years living in a wigwam on the bluffs above the Mississippi River, very close to the sacred, ceremonial Effigy Mounds constructed by her Ho-Chunk ancestors. Whether there or on the river banks, Emma Big Bear lived her life the traditional Ho-Chunk way, creating her art in the place she loved, no matter what challenges she faced.

For the story of Emma’s tribe, the Ho-Chunk Nation (known for over 350 years by the misnomer of “Winnebago,”) is a familiar one, as the U.S. government uprooted and exiled the nation away from its Iowa-Wisconsin roots by moving them onto reservations farther and farther from their original homes. Those displacements began in the 1830s; by the time Emma Big Bear was born in 1869 near Tomah, Wisconsin, the U.S. military had pushed many tribal members out of Wisconsin and Iowa and far away into Nebraska and South Dakota.

Emma was the daughter of Chief Big Bear and the granddaughter of Chief Waukon Decorah, the famed Ho-Chunk warrior and diplomat who today lends his name to three Iowa cities, including Waukon Junction on the banks of the Mississippi. When Emma was young, the Big Bear family lived in the area, nearby both Paint Rock, the ancient burial grounds of the Ho-Chunk, and what is now Effigy Mounds National Monument.

“From our newspaper archives, we know that Emma Big Bear left with her mother when she was a teenager and moved to the reservation in Nebraska,” McGregor Public Library director Michelle Petit recalls, “but she returned in the summers to gather ginseng, to sell.”

And she returned for good in 1917, with her Ho-Chunk husband Henry “Floating in Air” Holt; the pair set up their traditional wigwam near the Father of the Waters (Mississippi) River, had a daughter and lived happily without running water, indoor plumbing, electricity or any of the other modern conveniences until the mid 1940s, when both Henry and their daughter Emmaline passed away. Left all alone, at 75, Emma Big Bear moved to the banks of the river in McGregor, built herself another wigwam and continued live in the old way, still digging ginseng to sell in the summers and crafting and selling her baskets and jewelry all year round for 20 more years.

“Emma often would say that she didn’t want to live away from here. She always gave the river as her reason, the river and the land nearby, as to why she always wanted to stay here,” Petit says.

Her baskets, created of black ash from the trees that dotted the riverbanks, are her legacy, “works of art” as Halvorson reflects, “made with black ash strips in different sizes and with different colors. They are balanced and beautiful, still sturdy today.” —J.P.



LEFT TO RIGHT: Emma Big Bear lived her entire life near the sacred waters of the Mississippi River, part of her life within what is now the Effigy Mounds National Monument (visible from several scenic overlooks). She passed on her knowledge of traditional crafts, and her work is prized 50 years after her death.

REVERED BY ALL

Rogeta Halvorson, whose parents Roger and Connie Halvorson created the Emma Big Bear Foundation to preserve her history as well as to “promote and educate about American Indians and their history and culture, especially Emma’s tribe, the Winnebago and the Ho-Chunk Nation,” recounts how Emma survived alone, living for many years by the Mississippi River in the traditional Native American way in McGregor, Iowa:

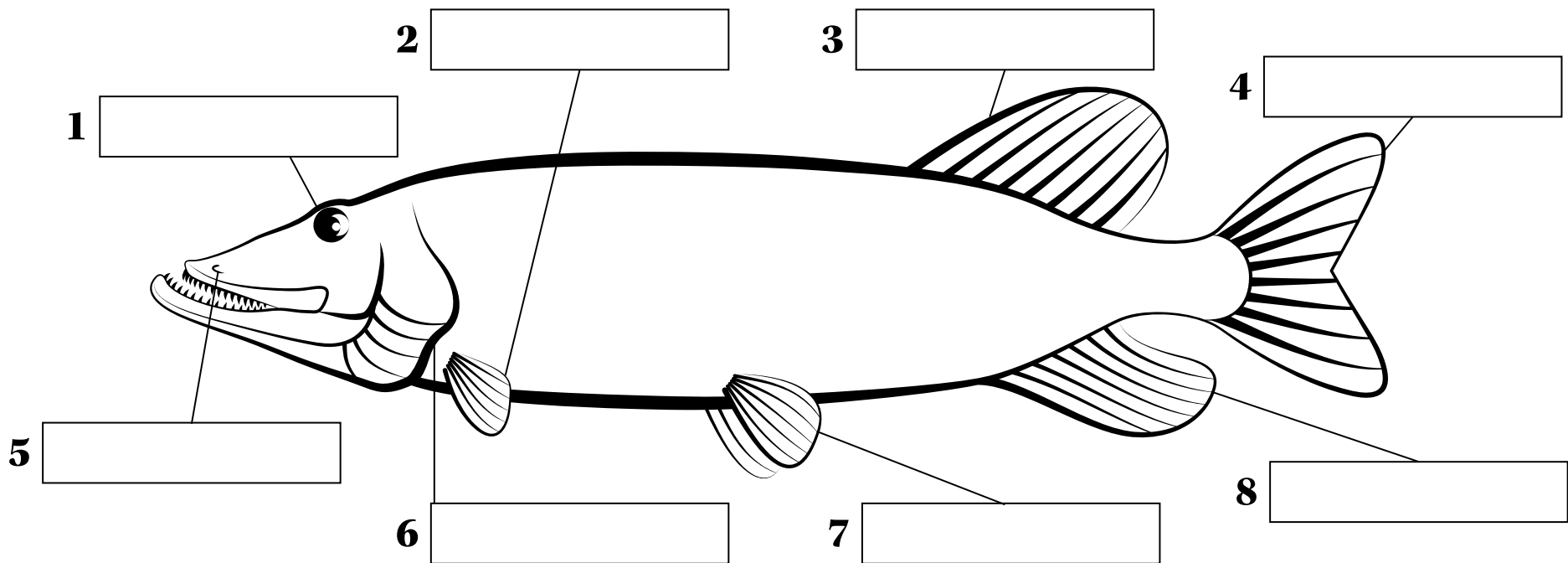
“Emma Big Bear lived by a traditional tribal means until maybe the last year or two of her life. So many 75-year-old men from around here have come to us with stories they remember from when they were 10 years old. They would take care of her, bringing her firewood for her little hut that she lived in by herself. They would go fishing and if they caught a carp or some other fish they didn’t want, they knew she did and would bring it to her. And in the last year, when she was so old and actually moved into a house, the townsfolk took care of her. It’s just, she was part of our family here, and she’s still very revered.”

Visit the Ho Chunk's sacred homeland

Start a visit to Effigy Mounds National Monument at the visitor center, where a short film interprets the story of American Indian moundbuilding cultures. Hiking on short accessible trails or extended hikes on steep trails is the only way to access the sacred burial and ceremonial grounds.

Do you know the parts of a fish?

Test the “scale” of your fish knowledge by filling in the blanks. Then color this pike!



1. Eye 2. Pectoral Fin 3. Dorsal Fin 4. Caudal Fin 5. Anal Fin 6. Gill Cover & Gills 7. Pelvic Fin 8. Nostrils

The Mississippi River is home to over 120 different species of freshwater fish, many of which are popular for sport fishing. Use this guide to help you identify four of the most popular Mississippi River fish!



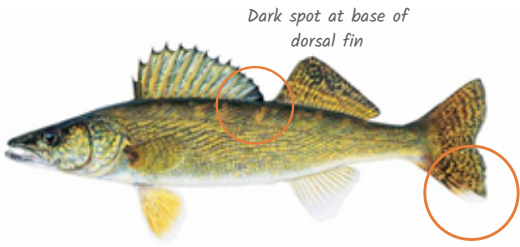
If you see whiskers, you've got a catfish!
(in this case a blue catfish)

Catfish

How do you know you catch a catfish? Well, just look for “whiskers”! Catfish have very long barbels, or feelers, on their head which look like whiskers – hence the name catfish. We have three major species of catfish in the Mississippi River: blue, channel, and flathead. Both blue and flathead catfish can exceed 100 lbs while channel catfish rarely exceed 30 lbs. The Mississippi River is one of the best places in the world to go fishing for catfish. In fact, a previous world record for blue catfish – weighing in at 124 pounds – was from the Mississippi River in Alton, IL!

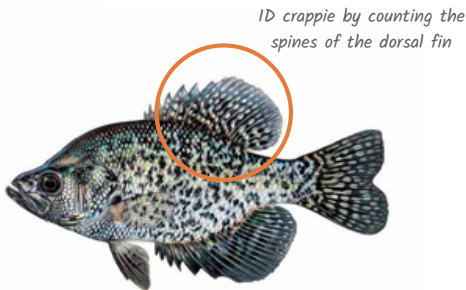
Walleye

Minnesota’s state fish and a favorite among sport fisherman is the walleye. It is named for its cloudy, glassy eyes, an effect that is caused by a layer of pigment that reflects light and helps the fish see better in the dark. Walleye have a distinct white spot on the lower tail fin and a dark spot at the base of the dorsal fin. They have an olive-green back and golden colored sides mottled with brown and/or black. The Upper Mississippi, north of St. Louis, offers the best walleye fishing along the river, with opportunities to fish walleye available all year long!



Dark spot at base of dorsal fin

Distinct white spot on lower tail fin



ID crappie by counting the spines of the dorsal fin

Crappie

Crappie (pronounced 'croppie') is a delicious freshwater fish found all along the river, but especially great for fishing in the Lower Mississippi. They are typically 9-10 inches long and weigh about 4 lbs on average. The two main species found in the Mississippi River are black crappie and white crappie. They can be difficult to distinguish just based on size and color though black crappie tend to be darker and white crappie often have vertical striped markings. The best way to tell them apart is by counting the spines of the dorsal fin; a black crappie will have 7 or 8 spines while a white crappie will have 5 or 6. They often form schools, meaning they travel in groups, and feed early in the morning or after dusk.

Bluegill

Bluegills are easy to identify thanks to their name: just look for the powder-blue color on the throat extending to the lower half of the gill cover. They also have a dark tip on the gill cover that distinguishes them from other sunfish. Bluegill can be found in freshwater throughout the United States, and are among the most popular sports fish in the entire country. They are feisty fish, strong for their size, and popular for fishing because of how easy they are to find and catch. They average around 4-8 inches and half a pound in weight, though they can be larger.



Dark tip on the gill cover

Pale-blue lower jaw extending to lower gill cover

DROP IN A LINE

“When you fish for love, bait with your heart, not your brain,” Mark Twain once said. And the Mississippi has drawn many travelers by instinct to its banks and open waters, long before—and since—the days when Twain’s fictional Tom Sawyer and Huck Finn were tossing in a line.

The Upper Mississippi alone is home to 120 different types of fish, and a single boat ride can take the traveler through varied habitats favored by dozens of species. The view’s not bad either.

Fishing the upper Upper Miss

Many species lure fishermen to the upper reaches of the Upper Mississippi, says Kyle Von Ruden, an avid angler and fish biologist in the Whitney Genetics Lab, an office of the U.S. Fish and Wildlife Service in Onalaska, Wisconsin. Yellow perch, bluegill, crappie, largemouth and small-mouth bass, northern pike and flathead catfish are on the menu.

It’s easy to find them all at the ubiquitous Midwestern fish fry. But catching your own in the upper stretches of the river means reading the currents, Von Ruden said.

“Our river fluctuates a lot with the rain. I am always paying attention to the river stage. In the spring you should be getting out of the current because the fish are spawning in the back waters and slower waters. In the summer when the water is low and closer to normal pool, a lot of fish move to the main channel or the main current sloughs. It is about having oxygen and flow.”

He recommends bait mimicking minnows and gizzard shad, especially a hollow-body frog lure.

“Twitching and popping a frog along the weed mats and flooded grass banks and seeing a bass explode on your bait is one of the most exciting ways to catch them.”

Fishing the Muddy Miss

The river turns a rich chocolate brown and gains speed as it absorbs the Illinois and Missouri rivers. The waters have been invaded by non-native carp, but catfish think the water is fine as the Big Muddy flows to the Gulf of Mexico.

“We have a lot of big fish here,” says Mark McCurry, owner of Bluff City Outdoors, a bait and tackle store in Alton, Ill. “About 35 percent of my customers are catfishermen. You don’t have to go to Lake Michigan to catch a big fish.”

The key, says John Chick, a devoted fisherman and fisheries biologist with the Illinois Natural History Survey’s Great Rivers Field Station, is finding holes on the river bottom.

“If you have a depth finder and can see the bottom and find some rocks, that can be a good place. Anywhere you have tributaries or streams coming in, that can be good. It also is good to fish downstream of islands.”

The lower river is deceptively deep, so anglers need long lines to reach the big cats, said David Herzog, a Missouri Department of Conservation biologist.

“Once you get below the Ohio River there are holes 80 to 100 feet deep ... some holes are 150 feet deep.”

He points to “flow seams” below wing dykes, rock tips and bends as good places to find lounging catfish. Local anglers also try the waters below corn transfer silos where grain can be spilled into the water.

Make fishing your Mississippi River travel theme

Not so-secret fishing holes of the Mississippi

MINNEAPOLIS-ST. PAUL

For walleye and channel catfish, the Wakota Bridge access along Interstate 494 is recommended by Elliott Stefanik, a Corps fisheries biologist. “The Fish and Wildlife Service has caught 40- to 50-pound Flathead catfish there.”

LAKE PEPIN

The 22-mile-long Lake Pepin, between Minnesota and Wisconsin, offers great fishing for walleye, channel catfish and smallmouth bass, Stefanik said.

LAKE ONALASKA

Stefanik and Von Ruden recommend Lake Onalaska in Pool 7, north of La Crosse, Wisc., for crappie, largemouth bass, bluegills, perch and northern pike.

POOLS 8 AND 9

Along with Lake Onalaska, Lawrence Lake in Pool 8 and Big Lake in Pool 9 have slower current or no current at all and abundant wild celery and lily pads.

ALTON TO ST. LOUIS

“The world record for blue cats has been shattered multiple times over the last 10 to 15 years right below the Mel Price Lock and Dam 26 at Alton,” Chick said.

CAIRO, ILLINOIS, TO THE GULF OF MEXICO

The abundance of the lower Mississippi is evidenced by the annual catfish tournaments staged along the river. An 86-pound blue catfish was caught in these stretches. —R.S.

Great River Road

It’s all the scenic route

Pick a theme, any theme, and chances are you can plan a trip around it as you venture the 3,000-mile Great River Road from the mouth of the Mississippi River at Lake Itasca to the Gulf of Mexico. But come fall, it’s all about the view.

Pack a picnic, and be in no rush. You’ll want to leave time to savor the sweeping views from the many state and national parks developed atop cliffs on both sides of the river. Find favorite fall color season overlooks at Frontenac State Park near Red Wing, Minnesota; Perrot and Wyalusing state parks in Wisconsin; Pike’s Peak state park and Effigy Mounds National Monument in Iowa; and Mississippi Palisades State Park in Savanna, Illinois.

Even as the topography flattens toward the river’s southern end, memorable fall color views remain. You’ll find particularly moving views within the Vicksburg National Military Park in Mississippi.

Find overlooks, maps and suggested trip themes like biking, food, history, music and more at experiencemississippiriver.com. —K.S.





Millions sought to improve Mississippi River water quality

A PARTNER ORGANIZATION of the U.S. Army Corps of Engineers is asking Congress to form a Mississippi River environmental program office and designate \$600 million annually to reduce the flows of water, sediment and nutrients into the Upper Mississippi River watershed.

“The volume and velocity of water, sediment and nutrients going through the system degrades water quality, the economy of the navigation channel, the river communities that are flooded and is costly to the municipalities having to treat water for drinking uses and manufacturing that has to filter that water,” said Kirsten Wallace, executive director of the Upper Mississippi River Basin Association (UMBRA).

The request would designate a Mississippi River Program Office to coordinate the work of the U.S. Environmental Protection Agency and Matisia Reservoir Conservation Service with the Upper Mississippi River states. The office would “improve and sustain the availability of clean water on the Upper Mississippi River and its watershed for people, fish and wildlife through state-federal coordinated investment,” according to the UMBRA proposal. Additionally, it would help agencies and states better manage and understand sediment and nutrient flows from sources like agriculture throughout the basin while still supporting the nation’s goals for farm production.

The quality of Upper Mississippi waters has been thoroughly studied, so the proposal emphasizes action, Wallace said.

“A lot of work has been done by the states, the agricultural community, conservationists and others to develop strategies. The funds would support existing programs and projects and would not create additional bureaucracy.”

The Upper Mississippi program office would be established within U.S. EPA. EPA program offices typically are based within a regional office. However, Wallace said, “The Mississippi divides two regions, so there is no real ownership within EPA for the river.”



Nutrients are often cited as a water quality concern on the Upper Mississippi River, particularly in terms of the UMR’s contributions to Gulf of Mexico hypoxia.

ABOVE: The Mississippi River winds through Louisiana farm country.

“Phosphorous and nitrogen are necessary for aquatic life, but at elevated concentrations these nutrients can lead to adverse effects on both aquatic life and human uses of a water body,” the UMBRA project summary explained, listing “water quality impacts such as algal blooms, fish kills and effects on drinking water supplies.”

The program office would channel funds to the states to implement their Clean Water Act responsibilities and nutrient reduction strategies, working and investing with local municipalities and farmers, Wallace said. The \$600 million request is comparable with the funding of other regional water quality program offices, she said.

Send story ideas to editor@ourmississippi.net

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