

Crosscurrents

Serving the St. Paul District since 1977

Summer 2021 | Vol. 47, No. 3



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**US Army Corps
of Engineers®**

St. Paul District

(cover) Kevin Hanson, geographer, holds a small unmanned aircraft at the Wabasha gravel pit, near Wabasha, Minnesota, June 30. USACE photo by Melanie Peterson



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Articles and photography submissions are welcome. Submissions may be mailed or emailed. Submissions should be in Microsoft Word format. Photos should be at least 5 in. x 7 in. at 300 dpi.

The mission of *Crosscurrents* is to support the commander's internal information program for the St. Paul District and its stakeholders. *Crosscurrents* also serves as the commander's primary communication tool for accurately transmitting policies and command philosophy to the St. Paul District community and its customers.

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Comments From The Top: A message from Col. Karl Jansen

MVP Teammates,

It is hard to believe that the summer months are over, schools are back in session and an inevitable transition to the winter is just around the corner! This summer was action-packed for the St. Paul District and all signs at the national level point toward increased infrastructure investment and the new, exciting workload opportunities that will come with it.

Three major anniversaries

On June 26, I traveled to Minot, North Dakota, to participate in a commemoration of the 10th anniversary of the 2011 flood and to celebrate the ribbon-cutting of a local flood risk management project feature. Many of our current teammates responded to the record flood in 2011, either flood-fighting in the weeks and months prior, upporting the long-term recovery with temporary housing and project development. The community expressed much gratitude for the support you provided in their time of need.

Another major anniversary was the 16th year since Hurricane Katrina made landfall near New Orleans.

Unfortunately, this anniversary coincided with the landfall of Category 4 Hurricane Ida in the same region! Like Minot, many of our current teammates were involved in the 2005 Hurricane Katrina response to include some of the major \$14 billion dollar project work that occurred in the years since. Everyone involved should be proud of your service in this region because the hurricane storm damage reduction system and associated features performed magnificently during Hurricane Ida – saving lives, reducing human suffering and enabling the community to bounce back quickly.

We are also approaching another significant anniversary for our country – the 20th year since the terrorist attacks of Sept. 11, 2001. This anniversary also coincides with the very difficult situation our country has endured with the withdrawal from Afghanistan following two decades of combat operations. No doubt this withdrawal has been especially difficult for our teammates, both civilian and military, who have served faithfully in Afghanistan through the years. Please know that your service made a positive difference, and your contributions will have a positive leg-

acy impact on those you served.

St. Paul District's final teammate to serve in Afghanistan was U.S. Army Maj. Andrew Berreth, who departed our district just a few months ago before his reassignment to the 82nd Airborne Division at Fort Bragg, North Carolina. Berreth served as the senior engineer on the ground at Hamad Karzai International Airport in Afghanistan during the withdrawal and directed the effort to fortify / defend the airfield to enable the safe evacuation of tens of thousands of Americans and Afghans. I hope those of you who are feeling pain about the situation in Afghanistan can find solace knowing that one of our own made an enormous difference on the ground for the people you care about.

St. Paul experienced a lot of **WINNING** this summer!

Winning in the U.S. Army Corps of Engineers is "finishing quality projects, on time, within budget...SAFELY."

Upper Mississippi River Restoration, or UMRR, work remains at full steam ahead in our region, as we are wrapping up the Bass Ponds project near



the Twin Cities and advancing work in Pools 8, 9 and 10 at the McGregor Lake, Harpers Slough and Conway project areas. I was privileged to observe this work firsthand in August with our UMRR program manager and key project management, construction and natural resources staff. This program continues to build a lengthy track record of excellence!

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Comments From The Top: A message from Col. Karl Jansen

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In Fargo, work was initiated to raise a 4.5 mile portion of Interstate 29 above the floodplain as part of the Fargo-Moorhead Flood Risk Management Project, and work was also initiated to construct the first portion of a 20-mile dam embankment. These features are in addition to ongoing work at the Diversion Inlet and Wild Rice River Structures which remain on budget and slightly ahead of schedule.

Our Dredge Goetz continues to make a huge impact on the Mississippi River, keeping the 9-foot navigation channel open for safe and efficient navigation, addressing key areas in our district area before recently shifting to Rock Island District's area. I'm thrilled to announce that the Dredge Goetz was recognized at the national level by the Council for Dredging and Marine Construction Safety for their outstanding safety culture and impeccable safety record – a huge achievement.

More broadly, our district made a huge stride with the implementation of the Corps of Engineers Safety and Occupational Health Management System, or CESOHMS, following a

successful external audit in June. We closed out all but one item for Phase 2 and made great headway for Phase 3, of the three-phase implementation program. Fantastic job from our CESOHMS Champion, CESOHMS working group, safety office and every district teammate who invests in our safety program each day.

Regional / National Landscape

At the national level, the Corps continues its drive to revolutionize civil works in preparation for an uncertain future. The proposed infrastructure bill in Congress, if passed, is likely to bring tens of billions of dollars to the Corps, and innovative delivery tools and approaches will be essential to deliver this important workload for the nation. In St. Paul, we anticipate direct program impacts with a future infrastructure bill and the opportunity to “help others win” across the other 43 districts.

Environmental justice is an administration priority, and the Corps continues to build a knowledge base and practical application of environmental justice throughout our permitting and project decisions. Ultimately, a focus on environmental justice

helps to “identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of the agencies programs, policies, and activities on minority populations and low-income populations” per Executive Order No. 12898.

The Mississippi Valley Division continues to advance four lines of effort to drive positive regional change: build the Mississippi Valley Division team of the future, sustain and improve infrastructure performance; strengthen external relationships and sponsor partnerships; and, strengthen program and project delivery. Regional leaders will highlight these lines of effort and our recent efforts to achieve them during an upcoming command strategic review convened by headquarters leaders and senior staff.



Maj. Gen. Diana Holland, Mississippi Valley Division commander, meets with Col. Karl Jansen, St. Paul District commander, in Fargo, North Dakota, June 18. USACE photo by George Stringham

In closing, it has been a great summer and we have much to look forward to in the seasons ahead. I appreciate all you do for our workforce, partners, region, enterprise and nation each day. I am constantly reminded of the caliber and character of people who serve on the USACE team and all of you certainly embody our M-V-P priorities of: **M**ission (working hard and doing a good job); **V**alue (making things better); and **P**eople (taking care of one another and those we serve). Thanks for all you do!

Chief visits St. Paul District

Story by Melanie Peterson

Lt. Gen. Scott Spellmon, 55th Chief of Engineers and U.S. Army Corps of Engineers commanding general, visited St. Paul District project sites in August, making stops at Upper St. Anthony Falls Lock and Dam in Minneapolis and Fargo and Minot in North Dakota.

His trip included a visit with community leaders in regards to the Mouse River Enhanced Flood Protection Project, in Minot, North Dakota, Aug. 11.

The St. Paul District and Souris River Joint Water Resource Board worked in partnership to develop the congressionally authorized federal portion of the Mouse River Enhanced Flood Protection Project. The joint effort includes building a diversion channel along Maple Street parallel to the BNSF railroad tracks, and a 1,200-foot-long earthen levee along the north side of the diversion, river control structures and road and railroad closure structures.

Spellmon's trip also included a visit to the Fargo-Moorhead Metropolitan Flood Risk Management Project in Fargo, North Dakota, and Moorhead, Minnesota, Aug. 12.

Spellmon met with Sen. John Hoeven of North Dakota, Rep. Michelle Fischbach of Minnesota and local officials to get a first-hand perspective of the progress toward reducing flood risk to more than 230,000 people and 70 square miles of infrastructure in the communities of Fargo, Moorhead, West Fargo, Horace and Harwood. The project includes building a 30-mile long diversion channel in North Dakota with upstream staging.



Lt. Gen. Scott Spellmon, U.S. Army Corps of Engineers commanding general, meets with St. Paul District employees in Fargo, North Dakota, Aug. 12. USACE photo by Shannon Bauer



Lt. Gen. Scott Spellmon, U.S. Army Corps of Engineers commanding general, meets with Nan Bischoff, project manager, at Upper St. Anthony Falls Lock and Dam in Minneapolis, Aug. 12. USACE photo by Brett Coleman

Corps reaches two major milestones in flood risk management

Story by George Stringham

Fargo-Moorhead Flood Diversion

The St. Paul District, along with the Metro Flood Diversion Authority, celebrated the latter's selection of Red River Valley Alliance, Corporación Acciona Infraestructuras S.L. as the public-private partnership, or P3, contractor for the Fargo-Moorhead Flood Diversion Project, June 18.

This was a significant event, as it is the first P3 contract for

public-private financing of a civil works project in the Corps of Engineers' history. The Fargo-Moorhead Flood Diversion Project, in Fargo, North Dakota, and Moorhead, Minnesota, was the inaugural pilot project for the innovative funding concept. This accelerated solution significantly increases the speed to complete the region's resilience to the annual Red River of the North flood threat.

"The implementation of this project using public, private partnership provides proof of concept and represents a new era in community-based infrastructure investment," said Lt. Gen. Scott Spellmon, Corps of Engineers commanding general. "This is a huge milestone for the Corps of Engineers, but it is an even bigger day for the more than 230,000 people and 70 square miles of infrastructure in the communities of Fargo, Moorhead, West Fargo, Horace and Harwood. This project is going to significantly reduce the annual risk that the river could damage or destroy their communities."

The event, which follows their "Resilient Together" theme, allowed all involved to reflect on the 2011 event, while, at the same time, celebrate the accomplishments made in the last 10 years to reduce flood risk.

"I want to applaud these communities for their planning and vision, and today is testament to what you've achieved in the past 10 years," said Col. Karl Jansen, St. Paul District commander. "Your leadership, at both the state and local level, your passion to protect your communities and perseverance to see it through has got us here today."

Mouse River Flood Protection

District staff joined Sen. John Hoeven, Minot officials, representatives from the Souris River Joint Water Resource Board and others June 26 as they commemorated the 10-year anniversary for the historic Mouse River Flood of 2011, then turned the page and celebrated with the ribbon cutting ceremony culminating the completion of two phases of the Mouse River Enhanced Flood Protection Project.

The St. Paul District is responsible for the Maple Diversion portion of the project, which encompasses a 4,900 foot-long channel with a north levee to divert flood waters of the Souris River from vital parts of infrastructure in the city of Minot. It will bridge the gap between two phases of the project that have already been completed. Construction of the diversion could start as soon as summer of 2023, if appropriated.



Corps leadership and local and elected officials celebrate the contractor selection for the first public-private partnership to complete the Fargo-Moorhead Metropolitan Flood Risk Management Project in Fargo, North Dakota, June 18. USACE photo by George Stringham

St. Paul District launches small unmanned aircraft program

Story by Melanie Peterson

The St. Paul District advanced its technological capabilities with the establishment of a qualified Small Unmanned Aircraft System, or SUAS, aviation team this year.

A SUAS is commonly known as a drone.

The team, trained by the Corps headquarters aviation team, has carried out a number of flights

this year, collecting high-resolution aerial imagery and elevation data. The SUAS team was the result of an effort through headquarters to utilize drone technology, guidance and training.

The first test flight was conducted March 8 at the Eau Galle Recreation Area near Spring Valley, Wisconsin. Two subsequent flights were carried out over the spring

and summer to test system performance, assess accuracy and develop standard operating procedures. These flights, at the Wabasha Gravel Pit and West Newton Chute dredged material placement sites near Wabasha, Minnesota, were conducted to acquire high-resolution imagery and determine the volume of river sand at the sites. Two additional flights are planned this year.

Zach Rogers, biologist, and Kevin Hanson, geographer, are remote pilots for the program and Jacquie Kovarik is an aircrew training program manager, who approves missions and coordinates trainings.

Flights also require visual observers, who must always maintain visual contact with the aircraft during the flight and watch for potential hazards, such as planes and birds of prey. "In the sky, the aircraft can look like a bird of prey, so sometimes we get eagles or hawks that are territorial and may attack the aircraft," Hanson said.

Keith LeClaire, GIS section chief, said, "The unmanned aircraft

system will be a great asset to our district's civil works mission."

St. Paul District's SUAS team collaborates to learn and develop the latest SUAS technology and provide exceptional products to the district. Highly accurate imagery and topographic data products can be acquired in one-day and rapidly delivered to the project delivery team to support a variety of environmental and engineering applications.



Small unmanned aircraft imagery of the Wabasha gravel pit from 390 feet above ground level, near Wabasha, Minnesota, June 30. USACE unmanned aircraft imagery



Kevin Hanson, geographer, and Zach Rogers, biologist, prepare for a flight at Eau Galle Recreation Area, near Spring Valley, Wisconsin, March 1. USACE courtesy photo

Maintenance team replaces nearly 80-year old gates at Lock and Dam 2

Story by George Stringham

The St. Paul District replaced the nearly 80-year-old miter gates at Lock and Dam 2 in Hastings, Minnesota, last July, as part of a larger project to replace the miter gates at Lock and Dams 2-10 over the next several years.

Lock and Dam 2's miter gates are original from the 1940s. The new upstream gates are 27-feet tall

and weigh 256,000 pounds, while the downstream gates are 30-feet tall and weigh 266,000 pounds. Over time, the gates have been damaged and distressed, which has led to serviceability and safety issues. The new gates will increase navigational longevity and operational readiness in support of the economically significant navigation infrastructure.

that had to be scrutinized and resolved."

Due to new criteria in engineering, safety requirements and industry standards, the newly designed gates are more than 50% heavier than the original gates. The increase in weight required newly upgraded anchorages, which serve to provide support of the new gates while also allowing them to pivot.

The project delivery team included multiple structural, mechanical, electrical, and civil engineers, in addition to operations and lock personnel. The experience and bulk of the install is credited to the maintenance and repair crews from both the St. Paul and Rock Island Districts. Most will remain on the team as the district continues with the preparations and manufacturing of new gates for the other locks.

Castellane added that the learning curve for Lock and Dam 2 was steep, as it was the first of several more miter gate replacements over the next few years. "Being able to work side-by-side with Rock Island's crew was in-

valuable," Castellane said. "This cross-district training experience is something we'll be able to carry forward as we repeat this process for the rest of our locks over the next few years."



Watch a time lapse video of the miter gate replacement [here](#) or at <https://www.youtube.com/>



Scott Rolbiecki and Nick Stanton, maintenance and repair, work on the miter gate replacement at Lock and Dam 2, near Hastings, Minnesota, July 20. USACE photo by George Stringham

The three-week process to physically replace the gates is the culmination of more than 5 years of effort in engineering design, manufacturing, transportation and installation.

"Countless hours went into this Herculean effort," said Nick Castellane, project manager. "There were a lot of moving pieces, a lot of details, to include logistics,

Corps employees recognized for work at Lock and Dam 2

Story by Nayelli Guerrero

Col. Karl Jansen, St. Paul District commander, recently recognized engineering and construction employees Erin Krug, Loren Soma, Wade Carr and Christina Vasseur with “on-the-spot” awards for their work replacing miter gate anchorages at Lock and Dam 2 near Hastings, Minnesota.

In 2018, after nearly 90 years of service, the Corps decided to replace the lock chamber’s four miter gates with newer, heavier gates to ensure the continued safety and operability of the lock for commercial navigation. The miter gates, which act like doors at each end of the lock, meet at an angle to block the river and allow the lock operator to raise and lower water levels within the chamber so vessels can pass (see story on Page 8).

Shortly before installation, Corps structural engineers discovered that the existing 90-year-old miter gate anchorages, which act as door hinges for the miter gates, were not strong enough to hold the newer, heavier miter gates. If the anchorages failed, the miter gates would collapse into the lock chamber, preventing navigation

on the Upper Mississippi River. The Corps delayed miter gate installation at Lock 2 until St. Paul District engineers could design new miter gate anchorages. The Corps awarded the contract for the new Lock 2 anchorages in 2019, and a contractor fabricated steel frames for the anchorages in summer 2020. Installation of the anchorages began in fall 2020 during the lock’s winter closure and was scheduled to be completed in mid-March 2021 for the start of the spring navigation season.

However, project construction was delayed when the contractor discovered that two of the four miter gates’ anchor bars, which connect the miter gates to their anchorages, would not connect correctly due to a gudgeon hood alignment issue. Erin Krug, structural engineer, explained, if a miter gate is like a standard house door, then the gudgeon hood is like the hinge plate attached to the door. The anchorages are like the hinge plate attached to the wall and the gudgeon pin is the pin that connects the two hinge plates together so the door swings about that point.

The misalignment of the gudgeon hood plates prevented the contractor from installing the gudgeon pin through the holes in the plates. Without the gudgeon pin securing the gudgeon hood plates, the miter gates’ two anchorages could not connect, preventing the miter gates from opening and closing.

The St. Paul District’s engineering team researched, evaluated and briefed potential solutions for the gudgeon hood issue until they found a workable solution that the contractor could accomplish. The contractor completed work in February 2021 during the coldest week of the winter, line boring new gudgeon pin holes and welding a new plate onto the bottom gudgeon hood plate.

“There were many challenges throughout the short project. Through collaboration with the contractor and Corps staff, we were able to work through the issues to develop a solution,” said Christina Vasseur, contracting officer’s representative for the project.

The lock successfully reopened to navigation on March 18, one day prior to the arrival of the first tow of the season.



(Right) Erin Krug, structural engineer, **(Left)** Loren Soma, mechanical engineer



(Right) Wade Carr, mechanical engineer, **(Left)** Christina Vasseur, civil engineer

Mississippi River mussel cleaning provides ecological and operational benefits

Story by Joe Jordan and Dan Kelner

Each year, for almost 20 years, the Corps of Engineers and other resource agencies on the Upper Mississippi River take a day and clean native mussels free from zebra mussels. No, they do not use scrub brushes, soap and water – just a little elbow grease.

Between 1998 and 2000, the Corps and the U.S Fish and Wildlife Service, or USFWS, were involved in formal consultation under Section 7 of the Endangered Species Act. The consultation focused on the Higgins eye pearlymussel and impacts from operation and maintenance of the existing 9-foot navigation channel for another 50 years.

Zebra mussels, transported by towboats and other large craft to upstream areas on the Upper Mississippi River using the federal navigation system, were a primary concern because they harm native mussels by smothering them and interfering with respiration, feeding and reproduction.

In its April 2000 Biological Opinion, the USFWS determined the operation and maintenance of the 9-foot navigation channel for an

additional 50 years would jeopardize the continued existence of the federally endangered Higgins eye pearlymussel because it provides a steady upstream transport of zebra mussels on the river.

To avoid a jeopardy decision, USFWS recommended the Corps establish new populations of Higgins eye pearlymussels within the species' historic range in areas with no or few zebra mussels and implement a zebra mussel control program.

The Mussel Coordination Team, or MCT, was formed to assist the Corps in complying with the terms and conditions of the 2000 Biological Opinion. The MCT includes malacologists – scientists who study mollusks – from the Corps' St. Paul and Rock Island Districts, USFWS, U.S. Geological Survey, National Park Service, state departments of natural resources, universities and non governmental organizations.

Over the years, the MCT evolved from an oversight group into an award-winning team dedicated to freshwater mussel conservation

on the Upper Mississippi River. Since 2000, the Corps has spent more than \$8 million on a variety of mussel relocation activities with assistance from the MCT. This has involved propagating Higgins eye pearlymussel and placing them in waters not infested with zebra mussels. The plan



Dan Kelner, fisheries biologist, relocates mussels in the footprint of a future cofferdam in the Chippewa River diversion channel, near Watson, Minnesota, August 4, 2020. USACE photo by George Stringham

used a combination of five propagation and relocation methods at 10 sites to reach the goal of at least five new populations in 10 years that would become self-reproducing and viable long term.

For the propagation efforts, the MCT used three sites for collecting gravid (egg release condition) females and glochidia (mussel parasitic life stage): Lower St. Croix River at Hudson, Wisconsin; Pool 11 at Cassville, Wisconsin; and Pool 14 at Cordova, Illinois. These sites were chosen for their Higgins eye pearlymussel genetic variability and availability of individuals.

In the summer of 2001, this relocation was accomplished as part of a mussel workshop conducted by the Illinois Chapter of the American Fisheries

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Society. As part of the collection of gravid Higgins eye pearlymussels, the group hand-rubbed off any zebra mussels attached to the mussels prior to relocation. Additional processing techniques were used prior to laboratory and relocation activities.

Any unused Higgins eye pearlymussels were placed in two specific stockpile sites within the Cordova bed for future propagation efforts. Prior to placement at the stockpile sites, “cleaning” zebra mussels off the live mussels became a common practice. As with any relocation site, the stockpile sites diminishes over time based on escape, burrowing and natural mortality.

Since 2002, the multi-agency and academic groups have come together for a one-day mussel collection effort to restock the stockpile sites using shallow water dwelling mussels. These mussels are easily accessed by non-diving surveyors with limited experience using their hands and feet to discover mussels. Every mussel is identified, cleaned of

any zebra mussels and returned to the water. All Higgins eye pearlymussels are returned to the stockpile sites for future propagation needs and all zebra mussels are destroyed and disposed of properly.

Since propagation efforts have concluded for the most part, the annual cleaning effort has evolved into a one-day mussel event getting agency folks together in an educational, team-building exercise. The annual Cordova Mussel Cleaning is held on the first Wednesday of August. Upwards of 75 people usually attend. The group generally collects several thousand mussels representing more than 25 live species.



A freshwater mussel, plains pocketbook, with invasive zebra mussels attached to its shell. USACE photo by Joe Jordan

Dykman remains vigilant during off-duty hours

Story by Melanie Peterson

For Eric Dykman, head lock and dam operator at Lock and Dam 8, near Genoa, Wisconsin, the commitment to public service and safety doesn't end when the workday ends. While enjoying his time off for the Fourth of July holiday, Dykman was camping in Pool 8 of the Mississippi River, near La Crosse, Wisconsin, with a few other boaters.

The group heard a danger whistle from a northbound tow downstream from them and not visible. Hearing the danger whistle twice more in quick succession, Dykman and several others got into a small boat to see if they could provide assistance. Rounding the high sides of the sandbar, they entered the main channel to see an inner tube, which was still attached to a small fishing boat, being dragged under the rake barge of the Motor Vessel Prairie Dawn.

The passengers of the small fishing boat had abandoned their boat and tube and were able to swim to a passing vessel out of further danger, however the inner tube and boat were caught under the head of the tow. Once the tow came to a stop, Dykman and the others, with permission from the tow's captain, were able to pull the boat and tube to the nearby shore.

“The family was very grateful,” Dykman said. “They were very lucky that the tow had empty barges. Otherwise, it would not have been able to stop as quickly.” According to the *American Waterways Journal*, it takes one and a half miles for a commercial tow to stop.

Troy Frank, Lock and Dam 8 working supervisor, said, “I'm proud of Eric's response efforts and his willingness to help others. Actions like this on or off duty reflect highly on the St. Paul District and the U.S. Army Corps of Engineers as a whole.”



Eric Dykman, head lock and dam operator at Lock and Dam 8. USACE courtesy photo

Corps collaborates to inoculate trees against Dutch elm disease

Story by Nayelli Guerrero

The American elm (*Ulmus americana*) was once a common sight on the Upper Mississippi River, but Dutch elm disease, or DED, has killed many trees.

DED is an invasive fungal pathogen that is spread by elm bark beetles and root grafts between healthy and infected trees. When DED infects an elm, it prevents water from reaching the tree's

leaves, causing it to wilt and die. DED affects many species of elm trees, but American elms are particularly susceptible due to their low disease resistance. The abundance of American elms on the river floodplain has meant that DED has disproportionately impacted these forests. Although there are still some American elms left on the Upper Mississippi River, DED kills most elms before

they can grow larger than 12 inches in diameter.

Over the years, DED transformed forests composed of maple, elm, and ash into forests dominated by maple and ash. The arrival of the invasive insect emerald ash borer has only increased the urgency of finding ways to combat DED. Emerald ash borer has decimated the ash trees in the Upper Mississippi's maple-ash dominated forests. Without American elms to replace the dying ash trees, the gaps in the Upper Mississippi's floodplain forest canopy are converting to areas dominated by invasive reed canary grass and other herbaceous species.

For high value trees in urban landscapes, preventive fungicide treatments can be used to preserve susceptible elms, however, there are not many options to protect large elms in the wild. The long-term solution to DED in the natural environment is the development of



A researcher drills a hole into a tree to inoculate it near River Falls, Wisconsin, June 8. USACE photo by Nayelli Guerrero



Sara Rother, intern, and Andy Meier, forester, meet with the U.S. Forest Service near River Falls, Wisconsin, June 8. USACE photo by Nayelli Guerrero

disease-tolerant elms. While no elm is completely immune to DED, tolerant elms can block the spread of the disease and survive to a larger size. "The loss of American elm and green ash as viable tree species in the Upper Mississippi River floodplain has had a significant impact on forest composition," Andy Meier, St. Paul District forester, said. "The breeding and selection of disease-resistant elm varieties could provide a critical component of forest restoration, giving us the potential to restore one species that has been lost."

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The St. Paul District and the U.S. Forest Service are part of the effort to identify American elm specimens that are DED-tolerant. The two agencies are collaborating on a study to compare DED resistance in wild American elm populations to a disease tolerant population. Data from the study will help researchers understand the heritability of DED resistance and develop new sources of American elm that are more tolerant to DED. The seeds of the trees that are most resistant to DED will be used in habitat restoration plantings along the Upper

Mississippi River and throughout the eastern United States.

The study is located at a 1.75-acre wetland mitigation site owned by the Corps near Ellsworth, Wisconsin. In 2014, the district helped the Forest Service plant 640 young trees at the site. The planting includes the “enriched” saplings of elms descended from crosses between clones with known DED tolerance. The wild elm population is represented by saplings grown from wild American elm seed collected from Corps sites near Spring Valley, Wisconsin, and La Crescent, Minnesota, and a Forest Service

site near White Lake, Wisconsin. Corps and the Forest Service employees recently returned to the site to inoculate around 200 saplings against DED. On a hot summer day in early June, the Forest Service’s Charlie Flower, Melanie Moore, Linda Haugen and Milcah Puliyeilil began inoculating trees.

The researchers drilled a hole about one inch into each tree to penetrate the xylem, the water-conducting tissue of a tree. They then inoculated each tree with 60,000 spores of a local isolate of the DED fungus, dabbed petroleum jelly over the hole and tied a flag around it. Researchers only inoculated trees one inch or more in diameter to ensure they could survive standard inoculation methods and DED infection and still have enough canopy to show leaf variation in response to DED.

The Forest Service returned to the site four weeks after inoculation and again at eight weeks to perform crown ratings, a process that evaluates the amount of die-back in the crowns of DED-treated trees. They will return for a final crown rating in one year. The data from the crown ratings will help researchers determine differences in response and survival between the wild saplings and the

enriched saplings with DED-resistant parents. The researchers plan to return to the site in a few years to complete a second round of inoculations on trees that were not at the right stage for inoculation this year.



Watch a video on the inoculations [here](https://www.youtube.com/watch?v=lwcE0ZmV1Zo) or at <https://www.youtube.com/watch?v=lwcE0ZmV1Zo>



U.S. Forest Service staff, Charlie Flower and Linda Haugen, measure the diameter of a tree near River Falls, Wisconsin, June 8. USACE photo by Nayelli Guerrero

Corps partners with Native American communities

Story by Nayelli Guerrero

The St. Paul District recently signed several cost sharing agreements and a project partnership agreement with Native American communities in North Dakota and Minnesota.

Sturgeon Lake

In February, the district signed a project partnership agreement with the Prairie Island Indian Community to restore habitat within Sturgeon Lake on the Mississippi River near Red Wing, Minnesota. With the signed agreement, the project can now enter the next phase. This includes final designs and construction of the more than \$1.3 million project. The work is expected to be finished by the end of 2024. The project, once completed, will restore and protect an island of cultural significance for the Prairie Island Indian Community, increase floodplain forest habitat, stabilize the island and significantly reduce invasive species.

This is the first project under the Tribal Partnership Program within the Mississippi Valley Division and only the second project within the U.S. Army Corps of Engineers to move into the design and implementation phase. "This is a huge accomplishment and a testament to the continued partnership with the

Prairie Island Indian Community," Kim Warshaw, project manager, said. "Not only are we restoring and protecting a culturally significant island on the Mississippi River, but we are also blazing a path forward to seek opportunities to support Native American tribes and their water resource development needs."

Red Lake fish passage

In June, the district signed a cost sharing agreement with the Red Lake Band of Chippewa Indians to study the feasibility of constructing a fish passage in Red Lake and restoring adjacent habitat in the Zah Gheeng



Col. Karl Jansen, district commander, Kim Warshaw, project manager, and Kevin Wilson, deputy district engineer, celebrate the signing of the project partnership agreement with the Prairie Island Indian Community Feb. 24. USACE photo by George Stringham

Marsh in Clearwater County, Minnesota. The study will assess the hydrology of the Zah Gheeng Marsh and the effects of an existing low-head dam on fish passage. Because the low-head dam was constructed to maintain water levels in the marsh, potential solutions to these problems are interconnected.

Within the marsh, restoration methods may include restoring portions of the original channel, adding water control structures, and other components, to achieve the goals of the project. Measures to address fish passage may include low-head dam removal, rock riffles or bypass fishways. These restoration efforts would directly influence critical tribal resources. The feasibility study is expected to be completed late 2022.

Rob Maroney, project manager, said, "The Red Lake fish passage project is an important opportunity for the St. Paul District to partner with the Red Lake Nation via the Tribal Partnership Program to explore the feasibility of improving fish passage on the Red Lake River and wetland habitat restoration of the Zah Gheeng Marsh with emphasis on waterfowl and mammal habitat."

Shell Valley Aquifer

In July, the district signed a cost sharing agreement with the Turtle Mountain Band of Chippewa Indians of North Dakota to study the hydrogeology and groundwater flow of the Shell Valley Aquifer in Rolette County, North Dakota. The tribal population within the Turtle Mountain Indian Reservation relies on groundwater, primarily the Shell Valley Aquifer, as their source of water. This project will study the feasibility of conducting a hydrogeologic study and groundwater flow model of the Shell Valley Aquifer to help the tribe manage its groundwater resources and understand potential contaminate flow paths. Work on the study is anticipated to begin in September 2021 and be completed in 2023. The project is estimated to cost \$890,000, of which around \$800,000 will be federally funded.

Clay Tallman, project manager, said, "This first ever partnership opportunity between the St. Paul District and the Turtle Mountain Band of Chippewa is important because this study will allow our tribal partners to have a substantially better understanding of this precious resource under their feet and plan for the future."

Join us on the first Thursday of every month at 11:30 a.m. for our Diversity, Equity and Inclusion forum!



EQUAL
EMPLOYMENT
OPPORTUNITY



Col. Karl Jansen, district commander, presents staff at Lock and Dam 8, near Genoa, Wisconsin, with a letter of appreciation, Aug. 18. USACE photo by Brett Coleman

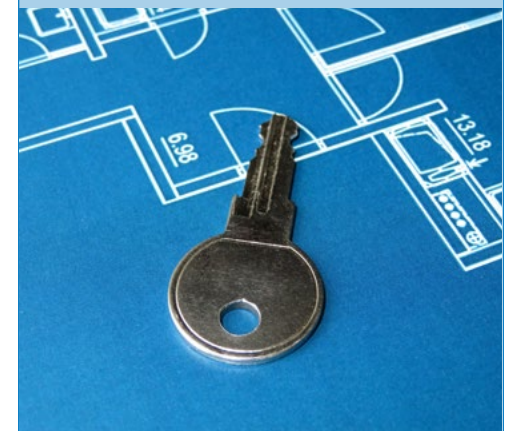
Staff at Lock and Dam 8 recognized for lending a helping hand

Story by Melanie Peterson

A group of grateful paddlers sent a letter of appreciation to staff at Lock and Dam 8, near Genoa, Wisconsin, after receiving assistance when their canoe started taking on water due to choppy river conditions. Col. Karl Jansen, district commander, took the opportunity to present the letter to the team. "This is a great example of the capable and caring staff at our locks and dams putting PEOPLE FIRST in all they do. This is just one example of the many acts of kindness our staff display up and down the river each day," Jansen said.

Security tips

1. Maintain situational awareness
2. Make sure door and window locks and exterior lighting function properly
3. Protect your personal information
4. Participate in a neighborhood watch program
5. Know emergency evacuation procedures at work



Corps preserves history at lockmaster house

Story by Melanie Peterson

The St. Paul District and the Guttenberg Heritage Society held a ribbon cutting ceremony to celebrate the reopening of the Lock and Dam 10 lockmaster house in Guttenberg, Iowa, June 6.

The lockmaster house underwent rehabilitative work in 2020. The improvements for visitor safety included removing lead paint; restoring historic characteristics of the house such as a roof replacement, wood siding work, chimney work; and reconditioning the shutters and windows. The rehabilitation work cost \$192,000 and was completed by Aegean Construction Supply Corporation, from Shalimar, Florida.

The St. Paul District leases the house to the Guttenberg Heritage Society to operate as a museum.

“It’s been a privilege and an honor to work with the Guttenberg Heritage Society on this effort,” Jim Rand, chief of locks and dams, said at the ribbon cutting. “It was about a three-year process, which included a historical structures report to make sure we maintain the historical integrity of the building as well as a path forward on the future maintenance that’s involved with that.”

Vanessa Alberto, Corps archaeologist, said, “It is important to the Corps to provide a positive and safe experience to those visiting, but we also recognize the need to preserve the historic character of the house. This house is one of the last remaining lockmaster houses on the river, and it is a symbol of the cultural history and heritage of not only the 1930s Great Depression but the construction of the lock and dam system on the river.”



Jim Rand, chief of locks and dams, cuts the ribbon at the lockmaster house in Guttenberg, Iowa, June 6. USACE photo by Melanie Peterson



The Lock and Dam 10 lockmaster house in Guttenberg, Iowa, June 6. USACE photo by Melanie Peterson

History

In 1930, Congress authorized the U.S. Army Corps of Engineers, St. Paul District, to construct a system of 13 locks and dams to achieve a consistently deep and reliable 9-foot navigation channel in the Upper Mississippi River. To facilitate efficient operation at all the locks in the St. Paul District, dwellings were constructed onsite for the lockmasters. By living onsite, the lockmaster was able to better operate the lock and dam and supervise the lock crew and boat traffic. From 1938 to 1971, lockmasters were required to live in these houses with their families. The lockmaster at Lock and Dam 10 chose to live in the lockmaster house until his retirement in 1990.

With lockmasters no longer needing to live onsite because of advances in technology and operations, most lockmaster houses were removed because they no longer served a purpose. The lockmaster house at Lock and Dam 10 is the only lockmaster house in its original location on the Mississippi River. In 1991, when the lockmaster house was no longer used as a residence, the city of Guttenberg formed a committee to plan a museum for the house with historic information about local and regional history with a focus on the history of the Mississippi River and the lock and dam.

Recreation areas unveil new fee machines

Story by Melanie Peterson

As part of the Coronavirus Aid, Relief and Economic Security Act, or CARES Act, the St. Paul District recreation received funds to replace its pay boxes with new fee machines. “Due to COVID-19 many things have changed, including the way we handle transactions at our parks,” Melissa Phelps, Cross Lake park ranger, said. The new fee machines are typically located near the entrance to the campground

and are easily accessible from a vehicle or by walking up. The fee machines are for day-use and people can use them to pay for showers, dump stations, boat launches and America the Beautiful passes.



Watch a video on the new fee machines here: <https://youtu.be/jBoLx1gLFtI>



Cheyenne Carlin, Eau Galle park ranger, shows off the new fee machine at Eau Galle Recreation Area near Spring Valley, Wisconsin, May 13. USACE courtesy photo



(Left) Hunter Simonson, park ranger, presents a beach towel to a visitor wearing a life jacket at Sandy Lake Recreation Area, near McGregor, Minnesota, May 27. USACE courtesy photo. (Right) Megan Severson, park ranger, hands out a towel to a visitor wearing a life jacket at Pokegama Recreation Area, near Grand Rapids, Minnesota, May 21. USACE courtesy photo

Rangers reward water safety

Story by Melanie Peterson

This year the Sandy Lake Recreation Area, near McGregor, Minnesota; Pokegama Recreation Area, near Grand Rapids, Minnesota; and Gull Lake Recreation Area, near Brainerd, Minnesota, were selected for the “I Got Caught” initiative. As part of the initiative, park rangers hand out beach towels to adults who are “caught” wearing their life jackets. The towels are provided by the Corps Foundation, a not-for-profit educational foundation incorporated that supports lakes and waterway sites located throughout the United States and managed by the U.S. Army Corps of Engineers.

Recognizing our Employees of the Month: The MVPs of MVP



June
Chris Afdahl,
Engineering and Construction



July
Doug Blexrud,
Operations



Around the district



Jane Mathison, Lock and Dam 8 lockmaster, talks to visitors at the Lock and Dam 6 open house in Trempealeau, Wisconsin, July 10. USACE photo by Nayelli Guerrero



Jamie Pinkham, Acting Assistant Secretary of the Army for Civil Works, visits the Fargo-Moorhead Flood Risk Management Project in Fargo, North Dakota, July 22. USACE photo by Shannon Bauer

Maria DeLaundreau, biologist, assists with the reintroduction of the Higgins eye mussels in upper Pool 2 at Hidden Falls, Minnesota, July 23. USACE photo by Dan Kelner



Wade Carr, mechanical engineer, interacts with visitors at the Minnesota State Fair in St. Paul, Minnesota, Aug. 31. USACE photo by Patrick Moes



A rainbow over the Sandy Lake Dam rehabilitation near McGregor, Minnesota, June 8. USACE photo by Noah Brown



St. Paul District military officers and Phil White, readiness operations center, wear red for women's equality day, Aug. 26. USACE courtesy photo

Around our parks



Cheyenne Carlin, park ranger, shows off the pollinator garden at Eau Galle Recreation Area, near Spring Valley, Wisconsin, July 14. USACE courtesy



Hunter Simonson, park ranger, races minnows as part of an interpretive program for kids at Sandy Lake Recreation Area, near McGregor, Minnesota, July 22. USACE courtesy photo

With almost 2.5 million visitors in 2020, our parks are as busy as ever.

Park rangers Ellie Tabako, Melissa Phelps and Tony Kilian host a team challenge, 'Conquer the dam' which required teams of four to solve riddles and complete various tasks around Cross Lake Recreation Area, near Crosslake, Minnesota, July 24. USACE courtesy photo



Brian Turner, park ranger, talks to a visitor at Gull Lake Recreation Area, near Brainerd, Minnesota, June 10. USACE photo by Melanie Peterson



Tammy Frauenshuh, park ranger, teaches boat safety at Sandy Lake, near McGregor, Minnesota, July 22. USACE courtesy photo



Check out our six part video series, play-by-play: a video series on fun and safe recreation, on our YouTube channel: <http://www.youtube.com/usacem-vppao>

News and Notes

New Hires

Calvin Aulwes, lock and dam operator, operations, Eastman, Wisconsin
Eric Bakke, biologist, regional planning and environment division north
Devon Bemis, deckhand, operations, Fountain City, Wisconsin
Colton Berg, laborer, operations, Valley City, North Dakota
John Biederman, lock and dam operator, operations, Hastings, Minnesota

Matthew Boberg, deckhand, operations, Fountain City, Wisconsin
Peri Bovitz, park ranger, operations, Grand Rapids, Minnesota
Noah Brown, park ranger, operations, McGregor, Minnesota
Cheyenne Carlin, park ranger, operations, Spring Valley, Wisconsin
Bryan Delaney, park ranger, operations, Valley City, North Dakota

Kaleb Doerr, deckhand, operations, Fountain City, Wisconsin
Dallas Ebersold, deckhand, Fountain City, Wisconsin
Paige Getting, park ranger, operations, De Soto, Wisconsin
Levi Gieseke, lock and dam operator, operations, Guttenberg, Iowa
Lianna Goldstein, regulatory specialist, regulatory, St. Paul, Minnesota

Jacob Gosnell, engineering technician, engineering and construction, St. Paul, Minnesota
Eric Gowdy, civil engineer (structural), engineering and construction, St. Paul, Minnesota
Epsen Hansen, student trainee, engineering and construction, St. Paul, Minnesota
Austin Hegenbarth, lock and dam operator, operations, La Crescent, Minnesota
James Hickey, student trainee, engineering and construction, Winona, Minnesota

John Incha, civil engineer, engineering and construction, St. Paul, Minnesota
Jacob Jandl, deckhand, operations, Fountain City, Wisconsin
Jeremiah Jazdzewski, civil engineer (hydraulics), engineering and construction, St. Paul, Minnesota
Eric Kastelic, physical scientist, regional planning and environment division north, Palm City, Florida
Anthony Kilian, park ranger, operations, Crosslake, Minnesota

Keith Kirkey, deckhand, operations, Fountain City, Wisconsin
Mitchell Knegendorf, civil engineer, engineering and construction, St. Paul, Minnesota
Justen Kosok, lock and dam operator, operations, Winona, Minnesota
Kevin Kriesel, lock and dam operator, operations, Trempealeau, Wisconsin
Leslie Lakey, lock and dam operator, operations, Red Wing, Minnesota

Kaden Lisowski, deckhand, operations, Fountain City, Wisconsin
Jinah Lockwood, secretary, executive office, St. Paul, Minnesota
Juliana Manzuk, office automation clerk, engineering and construction, St. Paul, Minnesota
Owen Mattila, student trainee, engineering and construction, Winona, Minnesota
Dylan McCullick, lock and dam operator, operations, Alma, Wisconsin

Andrea McRoberts, civil engineer, engineering and construction, St. Paul, Minnesota
Caylee Meier, park ranger, operations, Spring Valley, Wisconsin
Ellamay Mitchell, cabin attendant, operations, Fountain City, Wisconsin
Timothy Moenck, lock and dam operator, operations, Genoa, Wisconsin
Devon Nelson, park ranger, operations, Brainerd, Minnesota
David Palme, regulatory specialist, regulatory, Stevens Point, Wisconsin

Caden Pearson, park ranger, operations, Spring Valley, Wisconsin
Bryce Pellock, lock and dam operator, operations, Genoa, Wisconsin
Alexander Plevak, lock and dam operator, operations, Minnesota City, Minnesota
Joshua Przybylla, deckhand, operations, Fountain City, Wisconsin
Benjamin Rhoda, supervisory civil engineer, engineering and construction, Hastings, Minnesota

Sara Rother, student trainee, operations, La Crescent, Minnesota
Elizabeth Royce, biologist, regional planning and environment division north, St. Louis, Missouri
Noah Schaeffer, park ranger, operations, Valley City, North Dakota
Kasandre Slotty Figueroa, regulatory technician, regulatory, Brookfield, Wisconsin
Aaron Springer, park ranger, operations, Brainerd, Minnesota
Madison Springer, park ranger, operations, De Soto, Wisconsin

News and Notes, continued

New Hires, continued

Ellen Tabako, park ranger, operations, Crosslake, Minnesota
Alex Wallingford, lock and dam operator, operations, Minnesota City, Minnesota
Daniel Williams, park ranger, operations, Crosslake, Minnesota
Sierra Williams, student trainee, operations, La Crescent, Minnesota
Rudy Winckler, park ranger, operations, Grand Rapids, Minnesota

Casey Woodhouse, survey technician, operations, Fountain City, Wisconsin
See Xiong, civil engineer, engineering and construction, St. Paul, Minnesota
Dexter Yoon, civil engineer (structural), engineering and construction, St. Paul, Minnesota

Promotions

Alison Anderson, ecologist, regional planning and environment division north, St. Louis, Missouri
Kimberly Bahls, financial management specialist, resource management, St. Paul, Minnesota
Meghan Brown, soil scientist, regulatory, La Crescent, Minnesota
Trevor Cyphers, fish biologist, programs and project management, St. Paul, Minnesota
Grant Halvorson, civil engineer, engineering and construction, St. Paul, Minnesota

Gregory Hammons, construction control representative, engineering and construction, Fargo, North Dakota
Kari Hauck, supervisory civil engineer, engineering and construction, St. Paul, Minnesota
Jamie Hill, marine oiler, operations, Fountain City, Wisconsin
Yvette'e Jordan, construction control representative, engineering and construction, Fargo, North Dakota
Michael Kouba, engineering equipment operator, operations, Fountain City, Wisconsin
Leslie Lakey, lock and dam operator, operations, Red Wing, Minnesota
April McCann, construction control representative, engineering and construction, Fargo, North Dakota

Faith Sandberg, mechanical engineer, engineering and construction, St. Paul, Minnesota
Megan Severson, natural resource specialist, operations, Grand Rapids, Minnesota
Robert Slininger, construction control representative, engineering and construction, Fargo, North Dakota

Dustin Strand, safety and occupational health specialist, safety and occupational health, St. Paul Minnesota
Timothy Sullivan, lock and dam operator, operations, Red Wing, Minnesota
Colin Tyrrell, civil engineer, engineering and construction, St. Paul, Minnesota
Morgan Wirth-Murray, regulatory specialist, regulatory, Brookfield, Wisconsin

Retirements

Michael Bart retired June 30 as the chief of engineering and construction
Scott Goodfellow retired July 31 as a civil engineer (hydraulics)
Timm Rennecke retired May 31 as a natural resource specialist

Taps



Robert "Mississippi Bob" Brown, Lock and Dam 1 and 2, passed away May 26.



Kurt Brownell, former natural resource specialist and channel maintenance coordinator, passed away June 22.

News and Notes, continued

Taps, continued



Robert Halvorson, former member of the channels and harbors hydrographic survey team, passed away July 27.



Charles Malmer, U.S. Army Colonel, retired, and an architect and civil engineer for the St. Paul District passed away June 11.



Simon Rutherford, office of counsel, welcomed Ian Yuepheng Rutherford on June 14, weighing 8 pounds, 6 ounces.



Sam Smith, programs and project management, and wife Laura, welcomed Colette Jean Smith (5 pounds, 15 ounces) and Greta Martha Smith (3 pounds, 12 ounces) on June 18.

Congratulations



Megan McGuire, regional planning and environment division north, and family welcomed Alder Francis McGuire Busse July 14. He weighed 6 pounds, 9 ounces.



Brian Yagle, regulatory, married Emily Zempel March 27.



Katie Opsahl, regional planning and environment division north, and Dan Opsahl welcomed Lucrece (Lucy) Martha Opsahl July 10. She weighed 6 pounds, 10 ounces.



Sam Smith, programs and project management, and **Tammy Frauenshuh**, recreation and natural resources, were selected for the Mississippi Valley Division emerging leaders class.