

PlainsTalk

News from the Missouri Basin & Arkansas-Rio Grande-Texas Gulf Regions

Summer 2022

YELLOWTAIL REWIND PROJECT

PHOTO CONTEST NOW OPEN • THE HYBRID WORKPLACE • MEGADROUGHT
• MT ELBERT CRACK REPAIR • NEW MNI WICONI CONTRACT
• YELLOWSTONE RIVER FLOOD • GUERNSEY GATE REFURB



— BUREAU OF —
RECLAMATION



2022 Photo Contest now open!



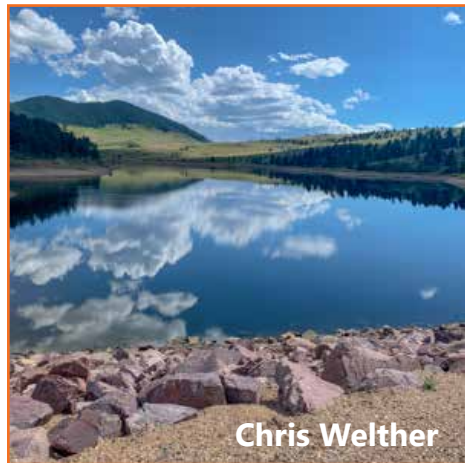
Laura Hertz



Chris Welther



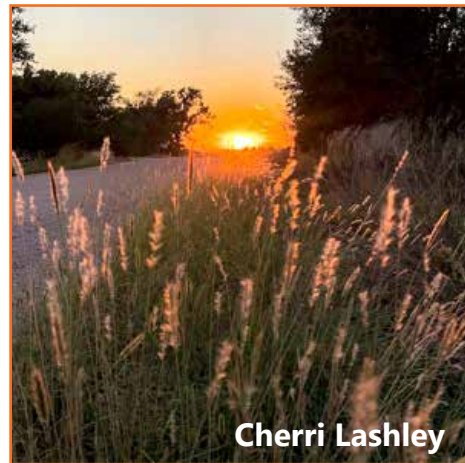
Zach Kilwein



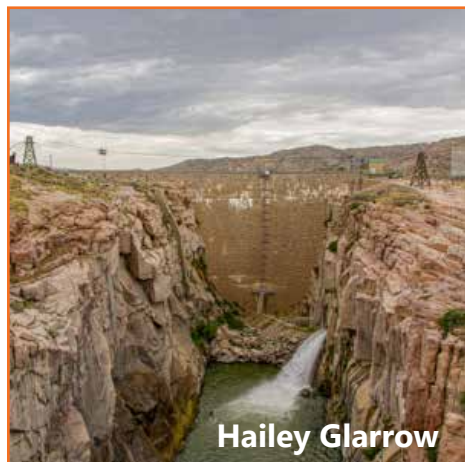
Chris Welther



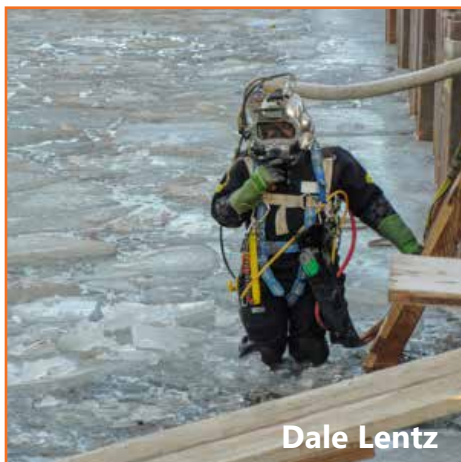
Gary Grassel



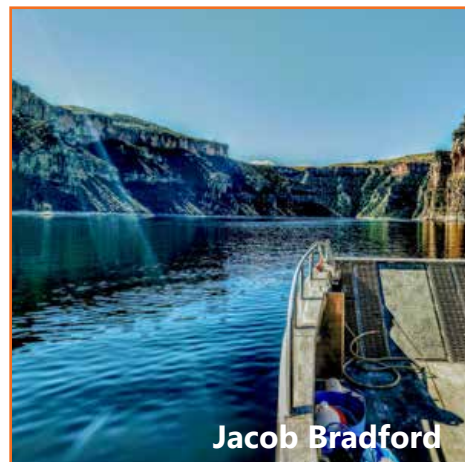
Cherri Lashley



Hailey Glarrow



Dale Lentz



Jacob Bradford



Mike Aspiazu



Hailey Glarrow



Gary Grassel

The annual Missouri Basin photo contest is now open for entries! Each year, employees never fail to submit an outstanding collection of imagery showcasing our region's natural beauty, people, wildlife, infrastructure, and worksites.

You can submit your best qualifying photos through Friday, Oct. 7 for a chance to be featured in the 2023 Missouri Basin Calendar, Reclamation social media sites and other products.

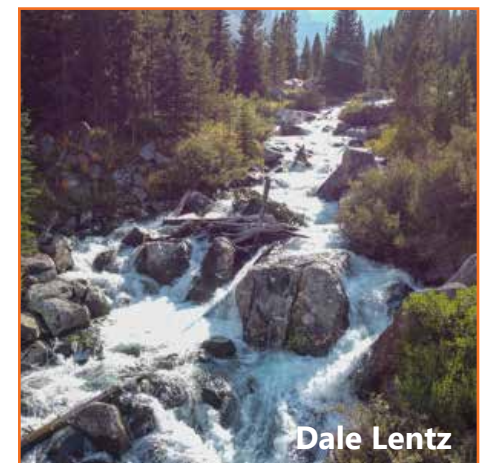
To enter, upload your photo and caption to <https://intra.gp.usbr.gov/tmp/exif.htm>.



Jennifer Hagenston



Toby Tabor



Dale Lentz

IMAGES: Please provide the highest resolution image you have. We want your photos to look their best, so basic editing is fine, as long as it does not affect the authenticity of the photo.

CAPTION: All photos must include an informative caption. Photographer name and caption MUST be filled out to be eligible.

SUBJECT: All photos must be taken within Missouri Basin Region. As many of us continue to telework, photos taken in your home and

neighborhood are welcome.

NUMBER OF ENTRIES: There is no limit to the number of photos you can enter. However, we may limit the number put up for voting based on quality.

DEADLINE: All photos are due by close of business Friday, Oct. 7.

QUESTIONS: Contact Darryl Asher at dasher@usbr.gov or (406) 247-7608.

Reclamation's New Normal: Reentry /Return to the Workplace phase occurred from Feb. 28 - April 25, 2022. Reclamation's "New Normal" includes increased presence in the traditional workplace coupled with formalizing longer-term workplace flexibilities like telework, remote work, and alternative work schedules.

pandemic and that is greatly valued. Our goal is to collaboratively ensure you feel safe and secure so together we can navigate the complexities of our 'new normal,'" said David Palumbo, Reclamation's Deputy Commissioner. "From severe drought to the global pandemic, you are continuing to persevere through the most challenging period in Reclamation's nearly 120-

in response to DOI policy bulletins. These changes formalize remote work practices across Reclamation and expand telework opportunities, including the rescission of former restrictions on supervisory telework.

"Hybrid and virtual work environments are a new standard in the post-pandemic workplace. You

we can make the future of Reclamation even better for the American people."

Pandemic-specific occupancy restrictions have been removed from all Reclamation workplaces. Each workplace has an exposure mitigation plan available for employees. When an exposure occurs, management may be able to rapidly mitigate the exposure, thus limiting spread or the need to close or temporarily restrict access to an area within the workplace.

"I could not be prouder to work alongside the incredible public servants here at the Department of the Interior. Every time I have the opportunity to witness Interior's workforce in the field or meet with different teams as we carry out our work for the American people, I can't help but be amazed," said Deb Haaland, Secretary of the Interior. "Amidst a pandemic, a transition to a new administration, and a climate crisis that presents challenges to all of our offices and bureaus, team Interior has forged ahead with professionalism and exceptional commitment."

The New Normal includes real-time, adaptive management that rapidly

mitigates workplace exposure until the pandemic ends. The New Normal will continue to implement government-wide policy changes implemented by the Office of Management and Budget, Office of Personnel Management, and the Department of the Interior. Reclamation will maintain and update a SharePoint site, linked on the front page of the Missouri Basin Intranet page, until the New Normal is simply normal operations. Tips and best practices for working in hybrid and virtual environments will also be shared on MB's Intranet page.

Employees should contact their immediate supervisors for questions or concerns regarding New Normal operations. The Employee Assistance Program is also available to help employees and their dependents address a variety of topics, including any stress or anxiety concerning the COVID-19 pandemic. For more information, visit the Employee Assistance Program website at <https://www.doi.gov/pmb/hr/eap> or call 800-869-0276.



Return to the hybrid workplace

NEW NORMAL

By Brittany Jones

While April 25, 2022, wasn't the end of the pandemic, the date signifies a return to the workplace in a pandemic-impacted society.

"Thank you for your spectacular reentry. I know many of you have been working at your office or facility throughout the

year history. Thank you for your continued professional excellence!"

Reentry brings new and revised human resources policies across the federal government. Reclamation issued updated and new directives and standards for remote work and telework

all have already been so impressive and consistent in navigating changes and challenges over the past two years," said Brent Esplin, Missouri Basin and Arkansas-Rio Grande-Texas Gulf Regional Director. "I look forward to working with all of you both virtually and in person and seeing how



Fuels reduction project at Keyhole Reservoir

By Cindy Larom, DKAO Natural Resource Specialist
Photos by Adam Madigan, DKAO Physical Scientist



The Montana Conservation Corps (MCC), under a cooperative agreement with Reclamation, performed a fuels reduction project on approximately five acres at Keyhole Reservoir located in eastern Wyoming. The objective of this project was to promote forest health and reduce fuels in the wildland urban interface zone between Keyhole State Park and the eastern edge of the Town of Pine Haven.

The fuels reduction project was in combination with the MCC's eight-day chain saw training class for approximately 22 of their crew leaders. Keyhole State Park Superintendent Wade Henderson and staff assisted and hosted the MCC by providing classroom space and campground facilities and working alongside them at the project site where part of it includes Keyhole State Park's Coulter Bay Campground tent camping area.

Before the MCC crew leaders arrived, Keyhole State Park staff met with Wyoming State Forestry to review the fuels reduction area to plan out the best strategy to manage the health of the timber stand by reducing ladder fuels, removing hazard trees, and thinning trees to open up the canopy.

Keyhole State Park supplied a chipper for the MCC to mulch the smaller trees and branches and the larger items were stacked for Keyhole State Park. The Pine Haven Volunteer Fire Department supported the project and showed their appreciation for MCC's hard work by providing a lunch buffet on their last day.

Wildland fires are not unknown in the area as just last year a 103-acre fire occurred on the western edge of the Town of Pine Haven and was contained through the efforts of Pine Haven Volunteer Fire Departments, other local volunteer fire departments, state agencies including Keyhole State Park staff, and federal agencies.

The Town of Pine Haven promotes a Fire Wise community concept to encourage homeowners to prepare their property to reduce the risk of fire through fire resistant landscaping and structures. The Keyhole Reservoir fuels reduction project partnership with Keyhole State Park, MCC, Wyoming State Forestry and the Town of Pine Haven Volunteer Fire Department promotes the ability to work together for a Fire Wise community.



MB, RST enter new Mni Wiconi Project contract



By Missouri Basin Native American Affairs Program



Chris Haines, P.E. Civil Engineer for Rural Water Division, Dakotas Area Office, works with a contractor to disassemble a valve vault at a Mni Wiconi repair location. (Reclamation photo)



Group photo taken after the Rosebud Sioux Signing Ceremony March 31, 2022. (Reclamation photo)

The Rosebud Sioux Tribe (RST) and Reclamation entered a new Indian Self-Determination and Education Assistance Act, P.L. 93-638, contract for the Operation, Maintenance, and Replacement of the Mni Wiconi Project's, Rosebud Sioux Rural Water System, March 31, 2022.

"Mike Addy and the Missouri Basin Region's Native American Affairs 638 staff worked closely with the Rosebud Sioux Tribe's Water Director, Young Colombe and his staff, as did Dani Fettig and the Dakotas Area Office Rural Water staff to get this agreement negotiated and executed," said Doug Davis, NAA Manager. "Negotiating and executing contracts with a contractor is one thing, but negotiating and entering into a Government-to-Government agreement with a sovereign nation is wholly another matter, and that is what 638 is. Negotiations for this new contract initially began in the late 1990s continuing through the 2000s and picked up considerably after construction of the system ended in 2014. A significant amount of time and effort was expended for both the Tribe and Reclamation. It's an honor and privilege to have people like Mike and Dani and their staffs who are able to coordinate and work closely with Tribes to make the 638 agreement, the RSRWS, and the Rosebud Sioux Tribe successful."

The Mni Wiconi Water Treatment Plant/Coreline provides potable water to 10 counties in South Dakota. It is the largest Native American/Tribal Water System in the United States. The vision of the Mni Wiconi Project is to improve the quality of drinking water, improve public health, prosperity, and provide employment opportunities. This vision is now a reality, as the project has been delivering water throughout central and southwestern South Dakota since May 2002.

The RST successfully planned, designed, and completed construction of the RSRWS in 2015 under a 638 construction contract entered into in 1994, and commenced operation, maintenance and repair of the RSRWS under the original OM&R contract in 1995. This new contract, a product of several years of negotiations and hard work by Missouri Basin's Native American Affairs 638 Program, the Dakotas Area Office Pierre Field Office, and RST Rural Water Department, replaces the original 1995 contract and contains all the key clauses and provisions of 638 law and regulations and Reclamation policy.

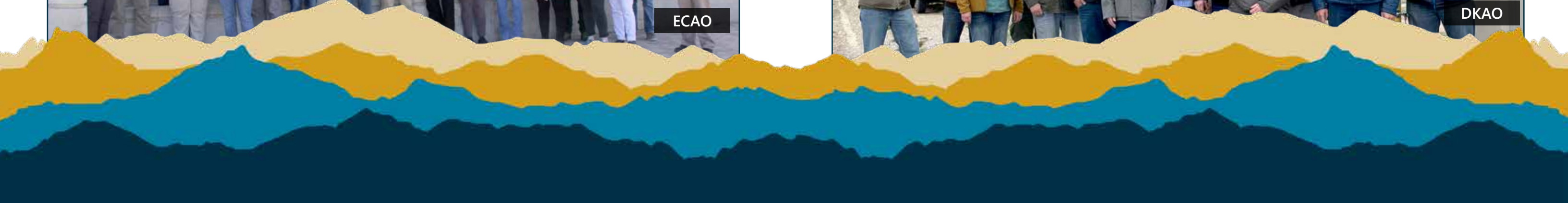
638 contracts are unique agreements entered into between sovereign entities, Native American Indian Tribes and the United States, that literally enable Tribes to step into the federal government's shoes and execute and operate federal projects. Brent Esplin Missouri Basin and Arkansas-Rio Grande-Texas Gulf Regional Director and the RST President officially executed the contract via a signing ceremony in Mission, South Dakota, March 31, 2022.





MB leadership trio visits the region

Regional Director Brent Esplin, and Assistant Regional Directors Marlon Duke and Brian Hollis visited staff in offices around the region during the first week of May.
(Photos provided by MB&ART staff)





WEBSTER DAM

■ stilling basin work begins

Photo and Caption by Mark Rouse, P.E.

Webster Dam and Reservoir started construction on a \$22.1 million renovation to the aging stilling basin in April 2021. The purpose of the renovation is to replace the spillway basin with new concrete and modifications to the underdrain system. The contractor, Ames Construction estimates over 8,800 cubic yards of concrete will be used to update the original construction performed in 1956.



Water Jamboree

By Cheri Lashley and Catherine Griffin

On April 26-27, 2022, the 29th Annual Water Jamboree was held at Harlan County Reservoir in Nebraska. The Nebraska-Kansas Area Office began participating in the Water Jamboree in 2017. This year, two NKAO employees volunteered at the festival. Cheri Lashley, Secretary, served as a tour guide for school groups, and Catherine Griffin, archaeologist, presented a table with the theme "Watershed Wonders." More than 400 students from 13 schools, and approximately 60 adult volunteers attended the festival.

Lashley enjoyed her first year as a tour guide. She had the opportunity to lead a bus load of kids to 9 stations each day which included water safety, forest buffers, water rockets, migration headache, pollinators, water filters, stream table, bubbleology and evolution of irrigation. The best part for Lashley was watching the kids attempt to set a siphon tube, as this brought back many memories of irrigating on the farm she grew up on in Southwest Nebraska.

The highlight of the festival for Griffin was hearing kids playing a trivia game at a nearby

table exclaim, "We just learned that!" after being asked the name of the longest river in the world (the Nile). At Griffin's table, small groups participated in short 5-10-minute discussions about river basins and the benefits of reservoir water. One tricky question for kids and adults: "Which direction does the Nile flow?" To help keep the kids engaged and exploring topics, Griffin handed out over 900 pieces of candy over the two-day event.

The Water Jamboree is an educational fun day for fifth and sixth grade students from South-central Nebraska and North-central Kansas. The two-day event is a cooperative effort by the Tri-Basin Natural Resources District, Lower Republican Natural Resources District, University of Nebraska Cooperative Extension, USDA/Natural Resources Conservation Service, Central Nebraska Public Power and Irrigation District, U.S. Army Corps of Engineers, and the Kansas State Research and Extension. Students participate in interdisciplinary water activities relating to aquatic life, recreational uses, water quality, non-point source pollution, irrigation, historical aspects of water, plants, and water, and how water quality affects wildlife. Many activities teach the importance of water through hands-on experiences.



Kids enjoying the Bubbleology station. Photo by: Cheri Lashley, USBR



Catherine discusses the Mississippi River Basin with 5th graders. Photo by: Sasha Hahn, Tri-Basin NRD



By Brittany Jones

MISSION ACCOMPLISHED: Yellowtail Rewind Project

After eight years of on-site work, the Yellowtail Generator Rehabilitation for a refurbishment process known as a rewinding has been completed. The multi-year project was awarded in 2013, and total project costs are estimated to be about \$57.2 million.

"I am very grateful for the opportunity to be part of this project that makes a difference on a day-to-day basis," said Brandon Hilliard, electrical engineer with Montana Area Office, and the Missouri Basin Region's first recipient of the Project Manager of the Year Award. "I am appreciative of everyone's support and the wealth of knowledge and experience the team members have brought to this project to make it the success it is today."

Yellowtail Power Plant began operations in 1967, and the previous rewinding was completed in the 1980s. Generators have insulated

copper bars or cables called windings in both the stationary and rotating portions of the generator. Windings are supported by a stack of thin layers of steel. Insulation degradation and mechanical fatigue cause the windings to deteriorate over time. During a rewind, old copper windings and steel are removed and replaced.

The project was originally planned for four years, but unanticipated discoverable items increased the timeline for completion. A mechanical connection issue, not commonly seen in Reclamation, was discovered in Unit 1 that resulted in compression problems and instability in the generator's operation.

"It's kind of sad that it ended," said Calvin Jefferson, Plant Mechanic. "The mechanics endured through the controlled chaos that was overwhelming. It tested every mechanic and forced them out of their

comfort zones. In the end we all learned a lot from each other. We feel with the quality of work we accomplished these units will run in top shape until the next overhauls in the distant future."

All hydroelectric generator units at Yellowtail Power Plant are now operational and will not need to undergo another rewind until around 2060. The original generators were rated at a 62.5-megawatt output, and now have a template rating of 71.3 MW.

Reclamation is the second largest producer of hydropower in the United States and operates 53 hydroelectric powerplants that annually produced, on average, 40 billion kilowatt-hours for the last 10 years.



Background photo by Christopher Murray



Reclamation Photo



Photo by Rick Brewer



Reclamation Photo



Photo by Darryl Asher



Rotor placement during original construction, Feb. 16, 1966, File photo by O. Gillen

MEGADROUGHT

continues to scorch, impacts reservoir levels in western states



By Brittany Jones & Christopher Murray

While a normal drought is defined as a season of less precipitation resulting in water shortages, the current two-decade long aridification that has exasperated western irrigators and recreationists, is more accurately characterized as a “megadrought”.

According to a study published in *Nature* in March 2022, the driest 22-year period in the southwestern United States on record spanned from 2000-2021. During this period, the geographical area’s precipitation fell 8.3 percent below the latter half of the 20th century’s average, and experienced temperatures about 1.64 degrees Fahrenheit warmer.

A tree-ring reconstruction study at the Lamont-Doherty Earth Observatory of Columbia revealed the current megadrought is the worst one experienced in America’s southwest in more than 1,200 years.

At the start of Water Year 2022, only a cumulative area of 15.56 percent of the 17 western states was not classified in some level of drought. More than 61 million people live in drought-afflicted areas across Reclamation states.

Drought impacts include loss of fish and wildlife habitat, crop failures, amplified wildfire risks,

increased food costs, decreased hydropower generation, and the potential for widespread water restrictions.

Although the Missouri River basin is currently experiencing developing drought conditions, there is no apparent correlation with the western megadrought. Reclamation’s reservoirs in the basin are exhibiting, for the most part, above average storage levels for this time of year. Reservoir inflows, although below average in most cases, have been adequate to maintain good storage levels and carryover storage in recent years has also been good.

“We here in the Regional Office have worked closely with the reservoir operations staff at our area offices to ensure that we are making the best use of storage, and minimizing drawdown of our reservoirs,” said Patrick Erger, Supervisory Civil Engineer for the Missouri Basin Region’s Hydrology & Water Operations group.

Precipitation in late spring this year has helped to soften the impacts of drought, but there is no way to predict whether that precipitation will continue through the summer. The latest forecast by the U.S. Army Corps of Engineers for Missouri River runoff is 17.8 million acre-feet, 69 percent of average. This is low enough to trigger water

conservation efforts by the Corps, in the form of minimum-service navigation flows through July 1, after which a decision will be made regarding flows for the remainder of the navigation season.

The Bureau of Reclamation’s Drought Response Program supports a proactive approach to drought. It aids water users with drought contingency planning and to take actions that build long-term drought resiliency. Since 2015, Reclamation has invested \$48.7 million for western communities for projects that will build long-term resiliency to drought and has invested an additional \$2.7 million to develop or update comprehensive drought plans since 2017.

Additionally, through WaterSMART, Reclamation works cooperatively with states, Tribes, and local entities as they plan for and implement actions to increase water supply through investments to modernize existing infrastructure and avoid potential water conflicts. WaterSMART includes programs providing cost-shared funding for on-the-ground projects to conserve water and increase the efficiency of water deliveries, construct major water reuse and recycling facilities, increase water supply reliability during drought, implement watershed restoration projects, develop

applied science tools, and to conduct collaborative planning efforts addressing drought and climate change.

Since 2021, 10 Missouri Basin projects in Montana, Nebraska, and Texas have received more than \$7.4 million in WaterSMART funds. These funds will be used to repair or replace existing infrastructure and will save an estimated 14,358 acre-feet of water annually by reducing existing losses due to seepage, overwatering, end-of-canal spills, evaporation, and more.

Reclamation is collaborating with its customers, stakeholders, and other partners to develop appropriate mitigation strategies to increased risks of drought and changes to precipitation, runoff, and increased temperatures. These strategies include:

- Supporting reliable water deliveries through construction activities and water management improvements, as well as diversifying supplies through water reuse and ground and surface water conjunctive use. One way the Eastern Colorado Area Office supports water conservation efforts was through the recent installation of ultrasonic flow sensors at the penstocks that feed water to the

three turbines at Estes Powerplant. This project enables accurate water flow measurement through each turbine, which will enhance understanding about actual turbine efficiencies throughout the power generation range. Accurate flow measurement through the powerplant will also help to better estimate the natural inflow from the Big Thompson River watershed into Lake Estes.

- Improving hydropower generation capability, flexibility, and reliability. Generators at the Canyon Ferry Power Plant in Montana are undergoing a rehabilitation project that will increase hydropower generation capabilities by 5 megawatts. Yellowtail Power Plant recently completed a multi-year generator refurbishment process as well, with a new nameplate rating of 71.3MW, compared to the previous rating of 62.5MW.
- Maintaining healthy ecosystems and protecting federally listed fish, wildlife, plants, and designated critical habitat affected by Reclamation facilities through a range of programs and activities. The Montana Area Office recently completed a new

fish bypass channel with the U.S. Army Corps of Engineers on the Lower Yellowstone to support the recovery of endangered pallid sturgeon.

- Addressing drought risks by proactively building resilience as the severity, duration, and frequency of drought increases.

There are also everyday actions that individual water users can take to help conserve water including:

- Check faucets for leaks
- Turn water off while brushing teeth or shaving
- Take shorter showers instead of baths
- Manage outdoor water use, reduce vanity lawn watering
- Install energy efficient appliances
- Displace water in your toilet tanks
- Only wash dishes or laundry when you have a full load

For more information visit Reclamation’s Addressing Drought Portal at <https://www.usbr.gov/addressing-drought/>.



Roy Vaughan receives top award at Arkansas River Basin Forum

Courtesy of the Arkansas River Basin Water Forum

Roy Vaughan was awarded the Bob Appel Friend of the Arkansas Award Thursday at the 26th annual Arkansas River Basin Water Forum.

Vaughan retired in 2021, and he was the Bureau of Reclamation manager of the Fryingpan-Arkansas Project.

"I had no idea I would be getting the award," Vaughan said. "I really need to thank all of the people I worked with for this great honor."

Vaughan began working for Reclamation in 1992 as dam superintendent at Pueblo Dam, which led him to an interest in all of the water operations of the Arkansas Valley, and water operations such as the Fry-Ark Project that import water from the western slope. He became manager of the Fry-Ark Project in 2008.

Last year's recipient, Upper Arkansas Water Conservancy District Manager Terry Scanga, presented the Appel award and read excerpts from 14 people who worked with him during his career in all parts of the Arkansas River basin. He helped bring people together over such controversial issues as the Preferred Storage Options Plan,



Roy Vaughan relaxes with his family at the Salida Steam Plant shortly after receiving the Bob Appel Friend of the Arkansas Award at the 26th annual Arkansas River Basin Water Forum Thursday, April 28, 2022.

Southern Delivery System and the Voluntary Flow Management Program. He was always eager to patiently explain water operations with a quick wit and great sense of humor.

"He felt the weight of occasionally failing to satisfy everyone's wishes far more than he enjoyed the buoyancy of the many times he did indeed satisfy them," wrote Chaffee County Commissioner Greg Felt. "Perhaps this is the price

of being a conscientious public servant. Certainly, it is evidence of a deep regard for all of the envisioned benefits of the Fry-Ark Project.

The Appel Award is named for Bob Appel, who promoted the Arkansas River as coordinator of the Southeast Colorado Resource Conservation and Development Council until his death in 2003.

Construction of the Fryingpan-

Arkansas Project was authorized on August 16, 1962. It makes possible an average annual diversion of 69,200 acre-feet of surplus water from the Fryingpan River and other tributaries. Water diverted from the western slope, together with available water supplies in the Arkansas River Basin, provides an average annual water supply of 80,400 acre-feet for both municipal/domestic use and the supplemental irrigation of 280,600 acres.



Bob Appel "Friend of the Arkansas" Award

The Forum presents this award annually to honor an individual who has served and worked to improve the condition of the Arkansas River in southeastern Colorado. The award is in memory of Bob Appel who, as Coordinator for the Southeast Colorado RC&D Council, tirelessly provided leadership for the Arkansas River Basin Water Forum. Past winners of the Bob Appel Award are asked to serve as the selection committee for future recipients.



Mt. Elbert Powerplant interim crack repair

By Derek Mickle, Electrical Engineer



Repaired crack

Crack with dye penetrant

During an annual inspection of the Mt. Elbert Powerplant (Unit 1) on February 21, 2022, a plant mechanic found what looked like a new hairline crack on one of the rotor spider arms.

The crack is due to a history of cracking on two of the arms in another location. The mechanic decided to perform dye penetration on the crack and found that it went through a bolted gusset support.

The engineering team deemed the crack severe enough to take the unit out of service until further investigation could be performed. An engineering firm was hired to perform a finite element and root cause analysis. The analysis showed the crack was most likely due to past weld repair efforts and fatigue stress.

With the unit already being out for an extended period of time, it was decided to perform an interim repair in parallel to procuring a permanent repair contractor. Mechanical engineers at the Technical Service Center and Eastern Colorado Area Office designed a bracket to brace the rotor spider arm to prevent further crack expansions.

In coordination with Tennessee Valley Authority, a bracket was machined, delivered, and installed within two months. Then a re-balancing effort of the rotor was performed, and the Unit was returned to service April 4, 2022. There is also an effort to install an experimental remote monitoring system on the rotor spider arms to ensure annunciation in the event there is any crack growth while the unit is in service until a permanent fix can be performed.

The Fryingpan-Arkansas Project in Colorado is a multipurpose transmountain, transbasin water diversion and delivery project, and Mt. Elbert Powerplant is a crucial component.

It makes possible an average annual diversion of 69,200 acre-feet of surplus water from the Fryingpan River and other tributaries water diverted from the western slope.

Together with available water supplies in the Arkansas River Basin, provides an average annual water supply of 80,400 acre-feet for both municipal/domestic use and the supplemental irrigation of 280,600 acres.



Top view of the rotor spider arm with the interim repair bracket installed.



Bottom view of the bracket in place.



**Yellowstone
River**

**ENTERING
BILLINGS**

Floodwaters rushed through the Yellowstone River the week of June 13-17. In the greater Billings area, the Montana Area Office kept an eye on the river flows as the historic 500-year flood event rose the river above 16 feet.

Reclamation operates and maintains the Huntley Project works which include a rockfill and concrete diversion dam, 32 miles of main canal, 22 miles of carriage canals, 202 miles of laterals, 186.5 miles of drains, a hydraulic turbine-driven pumping plant and an auxiliary electric pumping plant, both in the main canal, and in an off-stream storage reservoir. The project furnishes water to an estimated 30,000 acres of agricultural communities east of Billings.

"During this event the Yellowstone River surpassed the previous historic river stage height by 1.5'," said Chris Gomer, MTAO Civil Engineer, "Thankfully impacts to the Huntley Project Irrigation District were limited to bank erosion, sedimentation and low land flooding within the district."

Early summer rainfall and snowmelt have led to a roaring Yellowstone River. Flooding shut down Yellowstone National Park washing out roads at the North entrance early in the week and flooded the mountain village of Red Lodge before making its way toward Billings, the Huntley Project, and onto Glendive and Reclamation's Intake Diversion Dam. *(continued)*

HUNTLEY DIVERSION DAM weathers the flooding **YELLOWSTONE**

By Bryson Jones



Photo by Brittany Jones



Photo by Bryson Jones



Photo by Bryson Jones



Photo by Chris Gomer



Photo by Bryson Jones



Photo by Bryson Jones



Sky View Campground

By Elizabeth Smith
photos courtesy of Larimer County

Reclamation's partnership with Larimer County provided the land on which to build a new six-acre recreation development at Carter Lake reservoir, located along County Road 31 in Berthoud, Co. Larimer County Commissioners, Great Outdoors Colorado, Colorado Airstream Club, and the U.S. Bureau of Reclamation, alongside other project partners marked the occasion with a ribbon cutting ceremony on Thursday, May 12.

Designed as the first campground in Larimer County catering to large groups, Sky View will have a total of 15 campsites divided among three pods, accommodating up to 120 people. The design caters to groups looking to camp together for reunions, special

occasions, and other events. The new campground cost \$1.9 million.

Sky View Campground is a capital improvement project funded partially from visitor day use and camping fee revenues collected at Larimer County parks and open spaces. Campground reservations opened in January 2022 and the campground hosted reserved campers for the first time beginning May 20, 2022. Summer reservations are filling quickly.

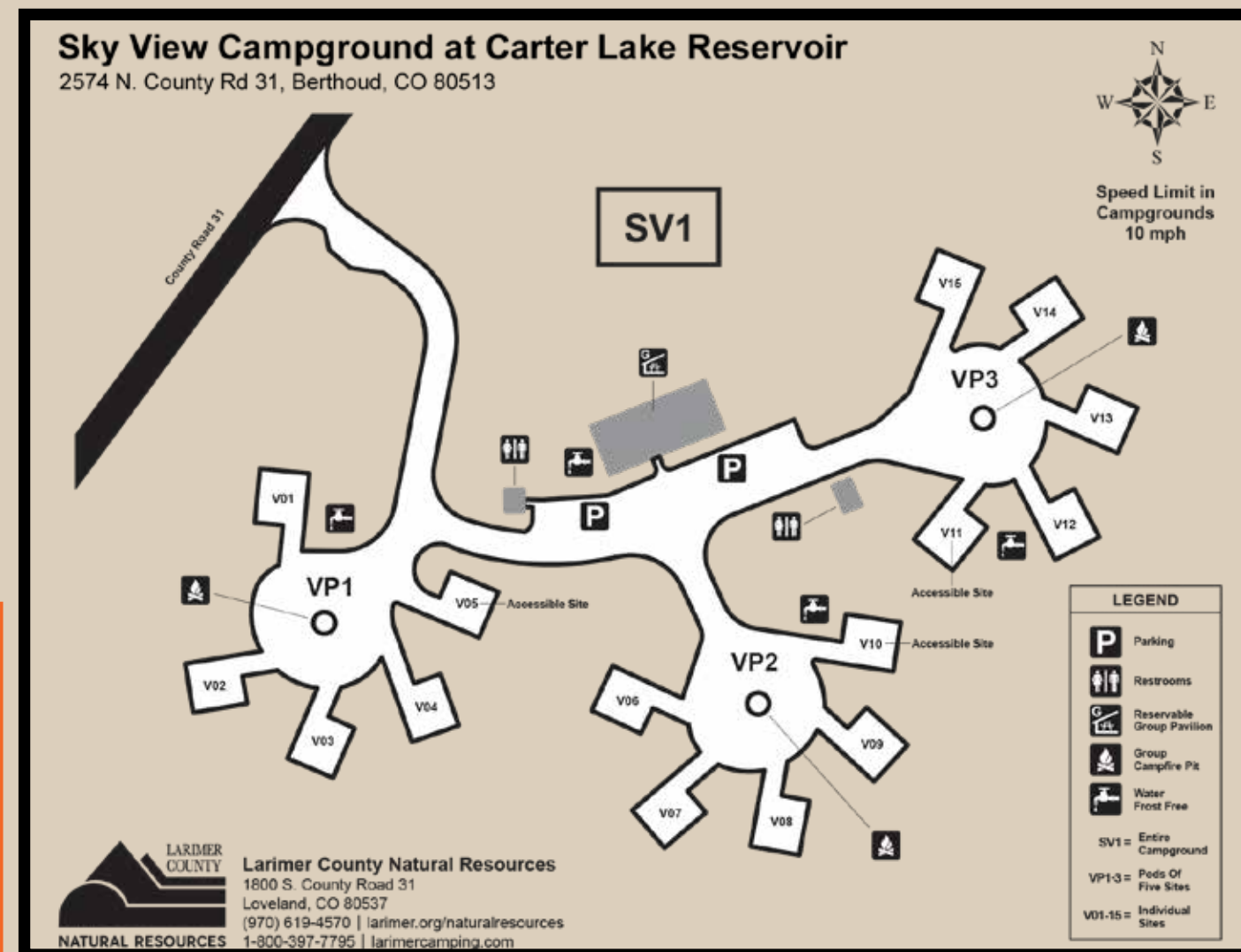
As a fully paved campground, Sky View can accommodate both RV and tent campers. In addition, the paved sites will make some areas of the campground accessible to individuals with mobility challenges. Other features of the campground include a group

pavilion, electric hook ups, water hydrants, restrooms, and communal fire rings.

input was considered in the development of Sky View's features and design.

Sky View Campground was unanimously approved in 2017 by the Board of County Commissioners in the Reservoir Parks Master Plan. Extensive community

For more information about Sky View Campground, visit: larimer.org/naturalresources/parks/carter-lake/sky-view-campground.



Walleye spawning building

Merritt Reservoir, Nebraska

In 2017, the Nebraska-Kansas Area Office partnered with Nebraska Game and Parks Commission, Fisheries Division to implement a Title 28 funding opportunity under Public Law 89-72 for a walleye spawning building at Merritt Reservoir, Nebraska.

Fully operational in 2018, the Fisheries Division began utilizing the 24 Square Foot building to collect walleye eggs to produce fry and fingerlings for stocking in the reservoirs. The entire process to collect the eggs takes 3-7 days.

Biologists traverse the reservoir at night gathering adult walleye to collect sperm and eggs. The walleyes are placed in a containment area and in the morning, males are separated from the females. It takes roughly 400 females to gather enough eggs to meet the stocking levels for fry and fingerlings, and another 100 males to gather the sperm for fertilization.

The walleye eggs are then manually removed one fish at a time. Once the eggs have been collected, the next step is to add the sperm to begin the fertilization. The sperm is diluted with



The Walleye spawning building in a bay of Merritt Reservoir with the walleye containment area

Story and photos by Jeanette Timm

distilled water to aid in sperm distribution and feathers are used to stir the mixture together. The fertilized eggs are added together with a fine clay-mud mixture called mucking.

Two to three batches of fertilized eggs are placed in a fish egg hatching jar and moved to a rolling process. The rolling of the eggs is to clean and remove the mucking. Water is pumped in from the lake to "roll" the eggs in the jar and clean the eggs. This process can take 30-60 minutes.

Once all eggs have been cleaned biologists move the eggs, using coolers to Calamus Fish Hatchery for the final step, hatching. Nebraska Fishery Biologists hope to produce 50 million walleye fry for stocking reservoirs this year, along with 4 million 1.5-inch fingerlings, and 60,000 8-inch fingerlings.



Nebraska Game and Parks Biologists select female walleye from the containment area for egg collection.



Reclamation's Natural Resource Specialist, Nik Johanson, demonstrates egg removal from a female walleye.

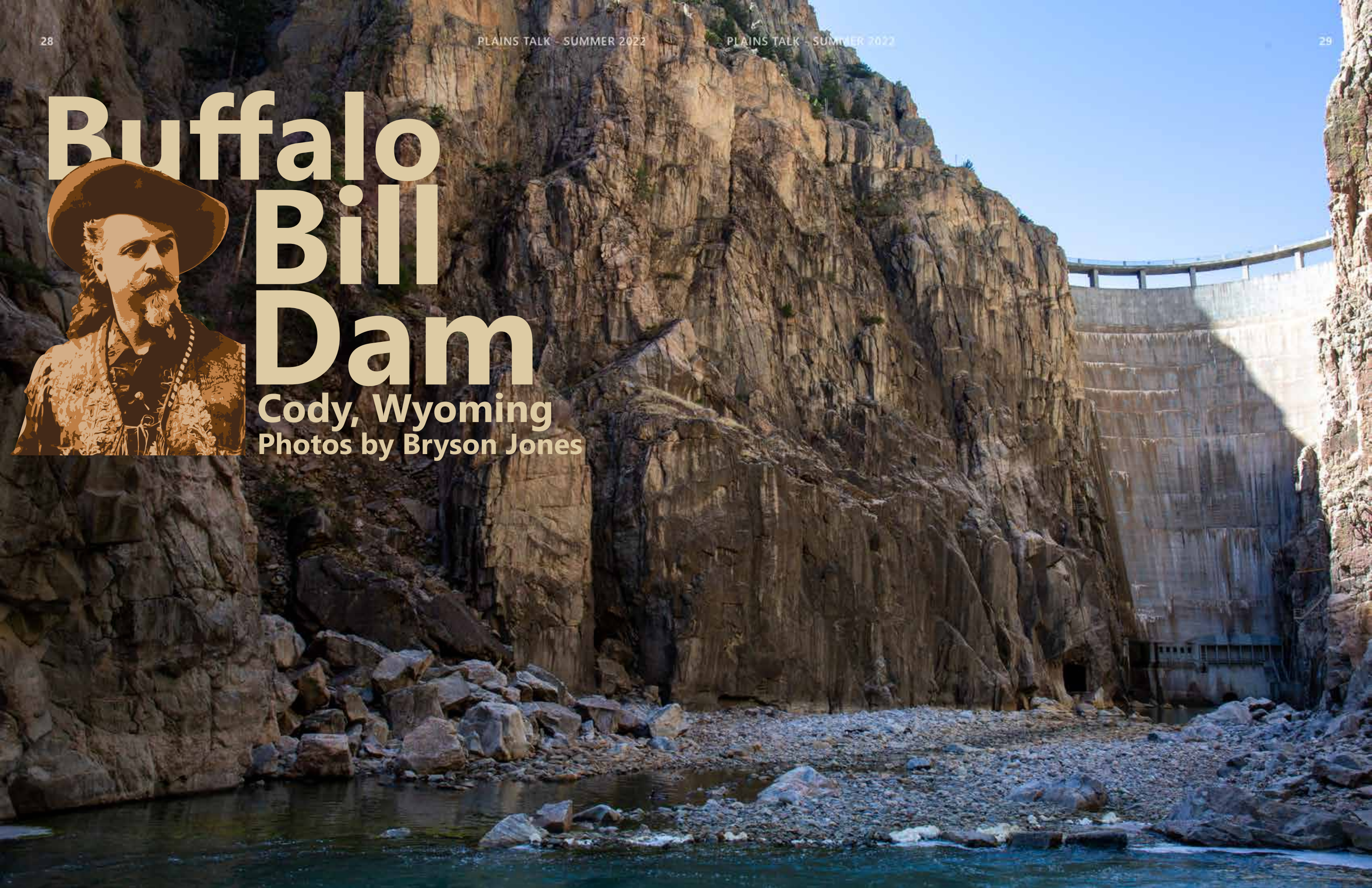


Sperm is added to the collected eggs with a little water for fertilization.



Buffalo Bill Dam

Cody, Wyoming
Photos by Bryson Jones

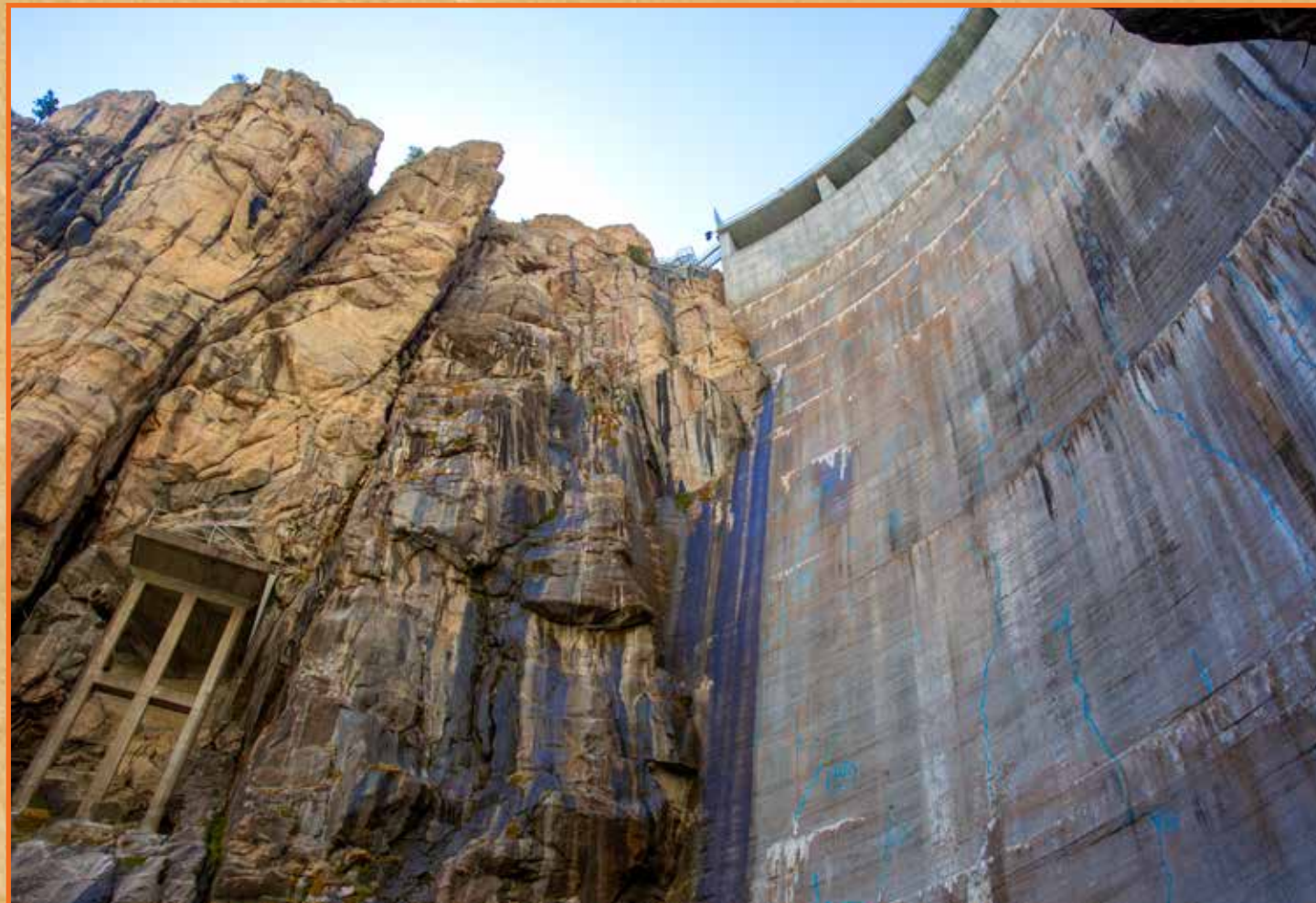




Left: Buffalo Bill Powerplant Supervisor Jack Buffkin explains how power is generated to volunteer members of the visitor's center at Buffalo Bill Dam and Shoshone Project Complex outside of Cody, Wyoming.



Bottom: Buffalo Bill Dam, Cody, Wyoming.



Top: A downstream view of the 1993 renovation, height adjustment, and visitor center.

Left: Cedar Mountain above Buffalo Bill Dam.

Right: View of the dam, and the Buffalo Bill Reservoir.





GUERNSEY

DYE TEST

Reclamation engineers, Joe Wright, Andy Quiniones, Trevor Vermeyen, Travis Bauer, and Sarah Galloway, performed a red dye test at Guernsey Dam as part of routine monitoring to evaluate for seepage. The nontoxic dye flowed downstream with releases and rapidly dissipated. Guernsey Dam was built from 1925-1927 and is an important feature of Reclamation’s North Platte Project. It is near the town of Guernsey, Wyoming, and is the furthest downstream of seven dams that are operated by Reclamation on the North Platte River.

Photos by Hailey Glarrow, Reclamation Natural Resource Specialist



GUERNSEY



roller mounted intake gate refurbished

By Hailey Glarrow, WYAO Natural Resource Specialist



Intake Gate being removed. (Byron Pindell)

Guernsey Dam impounds a 45,000 acre-feet Bureau of Reclamation reservoir in southeastern Wyoming. It is the Wyoming Area Office's furthest downstream storage dam on the North Platte River, just 54 river miles from the Nebraska state line. The 20-foot wide and 26-foot long Roller Mounted Intake Gate controls releases from the dam to the penstock for the powerplant and to three sluice gates which discharge into the south spillway tunnel.

The intake gate was originally installed in 1927 and was last refurbished in 1967. Over the next 50 years, the condition of the gate, roller chains and the hoist stem guides had gradually deteriorated to the point that major repairs were required and the gate seals leaked enough to affect the ability to perform penstock inspections.

Planning and designs to address these issues began in 2017. An Interagency Agreement was signed and a contract for the refurbishment was awarded to Tennessee Valley Authority out of Knoxville, Tennessee in 2020 for \$4.6 million.

Since Guernsey Reservoir is a key link in the water delivery system in the North Platte Basin, it was necessary to perform the gate repairs during the non-irrigation season. Normally, winter flows in the North Platte River are shut off at Guernsey Dam and upstream flows are stored in Guernsey Reservoir and the much larger Glendo Reservoir upstream. For this project, Guernsey was maintained in an empty condition during the non-irrigation season to keep water off the intake gate.

A retaining wall and large crane pad had to be constructed for the crane that would remove and replace the 38-ton intake gate, and construction of the pad began in September 2020 and was completed in November.

During most of the 2021 irrigation season, Guernsey Reservoir was operated at normal levels and boat ramps were still usable through Labor Day weekend. Lowering the reservoir began at the beginning of September. And by mid-month Guernsey was completely empty except for the small natural flow stream of water running through the Reservoir bed over the 20-mile stretch of river between Glendo and Guernsey dams. With the reservoir empty, work on the Intake Gate resumed.

Upon draining the reservoir, it was discovered that the bottom of the intake structure trashrack was buried under approximately 12-15 feet of silt. Silt removal was attempted by lowering an excavator down in front of the intake with a 450-ton crane. Most of the silt material was moved this way until the excavator got stuck. Once the excavator was freed, it was hoisted out by the crane. Hydro-excavating was then used to move enough material to allow the use of shoring for continued work on the structure. A clamshell bucket attached to the 250-ton crane was used to remove the remaining silt and debris. It is estimated that more than 1500 cubic yards of silt and debris was moved to finish the project.



Laramie County Bomb Squad digging out explosives. (Chris Delay, WSP)



New wood seal. (Byron Pindell)

While the reservoir was emptied in November 2021, two hikers several miles from the dam came upon four exposed bags of explosives and reported their discovery to the Guernsey State Park Superintendent, Chris Delay. Chris immediately called in the Laramie County bomb squad, who then discovered five more bags, dating from the 60s and 80s. The bomb squad then detonated the explosives in two separate batches. It was stated in a local news article, The Torrington Times, "At times these mixtures [were] used [for] military purposes or for mining purposes."

After removal, it was found that the gate itself was in good condition, given the service life of the gate. It was known the wood seal on the bottom had failed several years ago and needed replacement. The main structural members of the gate were inspected using Ultrasonic Testing for thickness and found to be in acceptable condition as compared to original drawings. There was also a Power Review Information System recommendation to address the failing coating. A temporary building was constructed so the gate could be refurbished onsite at Guernsey Dam. The gate was sand blasted and (continued)

... two hikers several miles from the dam came upon four exposed bags of explosives ...

(continued from previous page)

recoated with an Amerlock glass flake epoxy. All the hardware that could be accessed while the gate was out was replaced. All the seals were replaced including the rubber side seals, top seals and the wood bottom sill seal. The rollers on the side of the gate were also replaced as they were seized due to corrosion.

The gate structure was inspected, and it was determined that the trashrack, trashrack guide rails and the roller train needed to be replaced. The roller trains were in very bad shape and were replaced with newly fabricated sets from TVA Power Service Shops in Muscle Shoals, Alabama. The beams above the gate that were removed to allow the gate to be lifted out were replaced with new beams according to original design. All components that were original to the structure were sand blasted and all steel was coated with the same glass flake epoxy. All 88 new trashrack sections and guiderails were fabricated by TVA and shipped to Guernsey. TVA and its sub-contractors performed all onsite work in accordance with the IA agreement.



DKAO celebrates Earth Day

Story and photos by Laura Hertz



The Dakotas Area Office participated in the Bismarck Earth Day Celebration, April 26, 2022. DKAO's booth had an educational program for children and adults about invasive mussels. Visitors learned the difference between native and invasive species, played a game to show how quickly invasive species spread, and ways to help stop the spread of mussels. DKAO staff also teamed up with North Dakota Game and Fish to present the program during National Invasive Species week in May. For more information about the program, please contact Laura Hertz.



Flood control benefits Missouri Basin Region



2021 actual storage used for flood control:

468,168 acre-feet

2021 actual damage prevented:

\$20,254,775

1950 - 2021 accumulated actual benefits:

\$4,585,548,418

Data provided by Dale Lentz, Civil Engineer, Hydrology

Drought conditions can be experienced either at local or regional levels. A region may be experiencing drought, but localized conditions such as rapid snowmelt or an intense precipitation event can cause high flow events which may be captured in a reservoir to protect downstream property owners. High flow events can happen any time of the year, even during extended drought periods.

508 COMPLIANCE

By Darryl Asher

Responsibilities and benefits

In 1998, Congress amended the Rehabilitation Act of 1973 adding Section 508, which "...require(s) Federal agencies to make their electronic and information technology (EIT) accessible to people with disabilities." In 2017 the guidelines were updated to keep pace with technology and to ensure that as many people as possible have access to important communications.

WHO IS RESPONSIBLE FOR 508 COMPLIANCE?

The responsibility for making electronically distributed documents 508 compliant **rests with the document creator**. 508 compliance is not an automatic process, so documents have to be remediated to bring them into compliance. Since not everyone is an expert in remediating documents, there are resources available to help. **Section508.gov** is the main repository for all things related to 508 compliance, including training, guidance, products, and services.

If you are planning to electronically distribute a document, and can't remediate the documents yourself, Reclamation has a GPO contract which provides this service. For information, email **publishingservices@usbr.gov**.

WHAT ARE THE BENEFITS OF 508 COMPLIANCE?

508 compliance ensures that our documents are accessible to as many people as possible, increasing the reach of our communications. It also ensures that our coworkers with visual impairments are able to access documents vital to performing their duties. 508 compliance also helps to retain experienced and skilled staff who may become disabled.

Making websites and hosted documents 508 compliant also improves search engine optimization, allowing the public to more easily find the information and services we provide. This increases our efficiency and improves our reputation among the American public.

In short, 508 compliance is not just a requirement, it's the right thing to do ... and the smart thing.



Photo by Seth Joramo

ALTUS DAM, OK

Cutoff Wall at Lugert Dike

by Seth Joramo, MB Geologist

On Feb. 21, 2022, construction began on a cement-bentonite slurry trench cutoff wall (CB wall) through the crests and foundations of Lugert Dike and East Dike B to reduce risks associated with internal erosion.

The CB walls at Lugert and East Dike B were excavated with a long reach excavator in a continuous trench through the embankment and foundations of the dikes to interrupt the permeable foundation layers and extends five feet into the Permian Hennessey shale bedrock beneath the dikes to provide a positive cutoff.

The cement bentonite mixture was pumped into the excavation to stabilize the trench during excavation and will remain in-place after excavation. This wall would cut off the permeable layers which contributes to the seepage conditions identified through the foundations of the dikes.



Photo by Ron Oakes



Team Geology: Rob Lung, Bryan Simpson, and Seth Joramo (Ron Oakes)



Photo by Ron Oakes

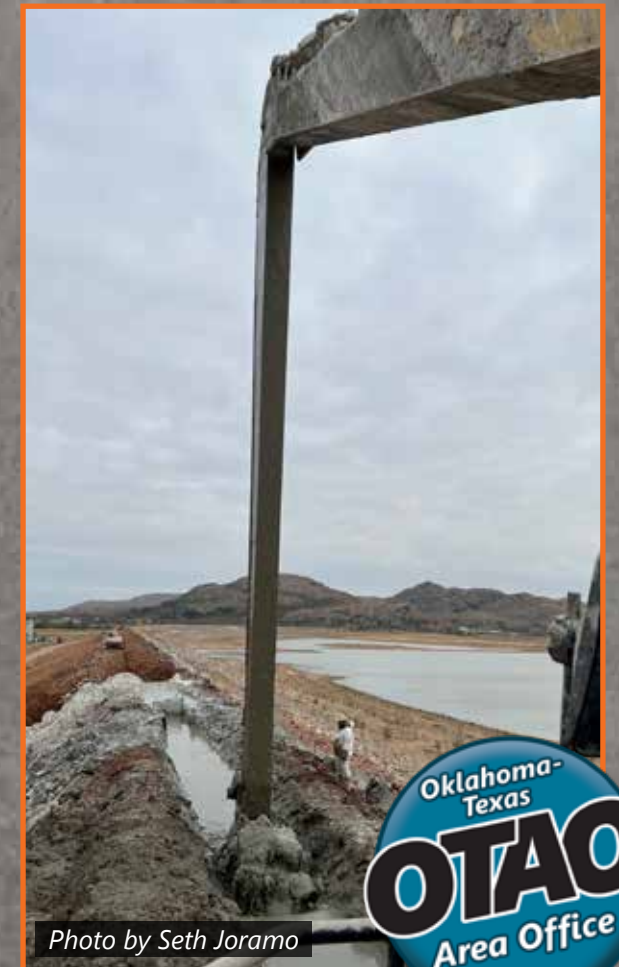


Photo by Seth Joramo



CROSSWORD

SUMMER 2022

3. Name of the campground on the new six-acre recreation development at Carter Lake Reservoir

8. Tribe that entered a new self-determination contract with Reclamation

10. Type of gate that controls releases from Guernsey dam to the penstock for the powerplant and to 3 sluice gates which discharge into the south spillway tunnel

13. Program that has funded 10 MB projects with more than \$7.4 million since 2021

15. Reclamation is the nation's 2nd largest producer of this renewable energy

18. Type of mixture pumped into the excavation to stabilize the trench during recent construction at Altus Dam

19. Type of test used to evaluate for seepage during routine monitoring at dams

22. Fish hatchery for walleye in Nebraska

25. Refurbishment process just completed at Yellowtail Power Plant

28. The Fryingpan-Arkansas Project diverts 29,200 af of surplus water from this river

29. Reservoir will a walleye spawning building in NKAO

30. construction began in February on a cutoff wall at this dike in OTOA

31. Construction contractor working on the stilling basin at Webster Dam

32. Retired Reclamation employee awarded the Bob Appel Friend of the Arkansas Award

33. A fuels reduction project was completed on 5 acres of this reservoir

1. The bomb squad from this county assisted with found explosives at Guernsey Reservoir

2. A crack was found on a rotor spider arm during an annual one these at Mt. Elbert

3. A \$22.1M renovation at Webster Dam will replace this

4. Dam built from 1925-1927 and an important feature of the North Platte Project

5. The entire process to collect eggs of this fish at Merritt Reservoir takes 3-7 days

6. Secretary of the Interior

7. An estimated 8.8K cubic yards of concrete will be used to update the original construction performed in 1956 at this dam

9. Job title for some employees who work at a fishery

11. Carter Lake opened a new one in May

12. Jack Buffkin is the power plant supervisor at this location

14. Check your faucets for these to help conserve water

16. Oct. 7 is this for the 2022 photo contest

17. After 8 years, the rewinding at this power plant is completed

21. Includes increased presence in the physical workspace and formalized long-term workplace flexibilities

23. Reclamation frequently monitors and evaluates for this condition at dams

24. Reclamation mechanical engineers designed a bracket to brace the rotor _____ at Mt. Elbert to prevent further crack expansions

26. This type of damage occurred at Mt. Elbert and was most likely due to past weld repair efforts and fatigue stress

27. DKAO staff educated community members about this type of mussel during an Earth Day event



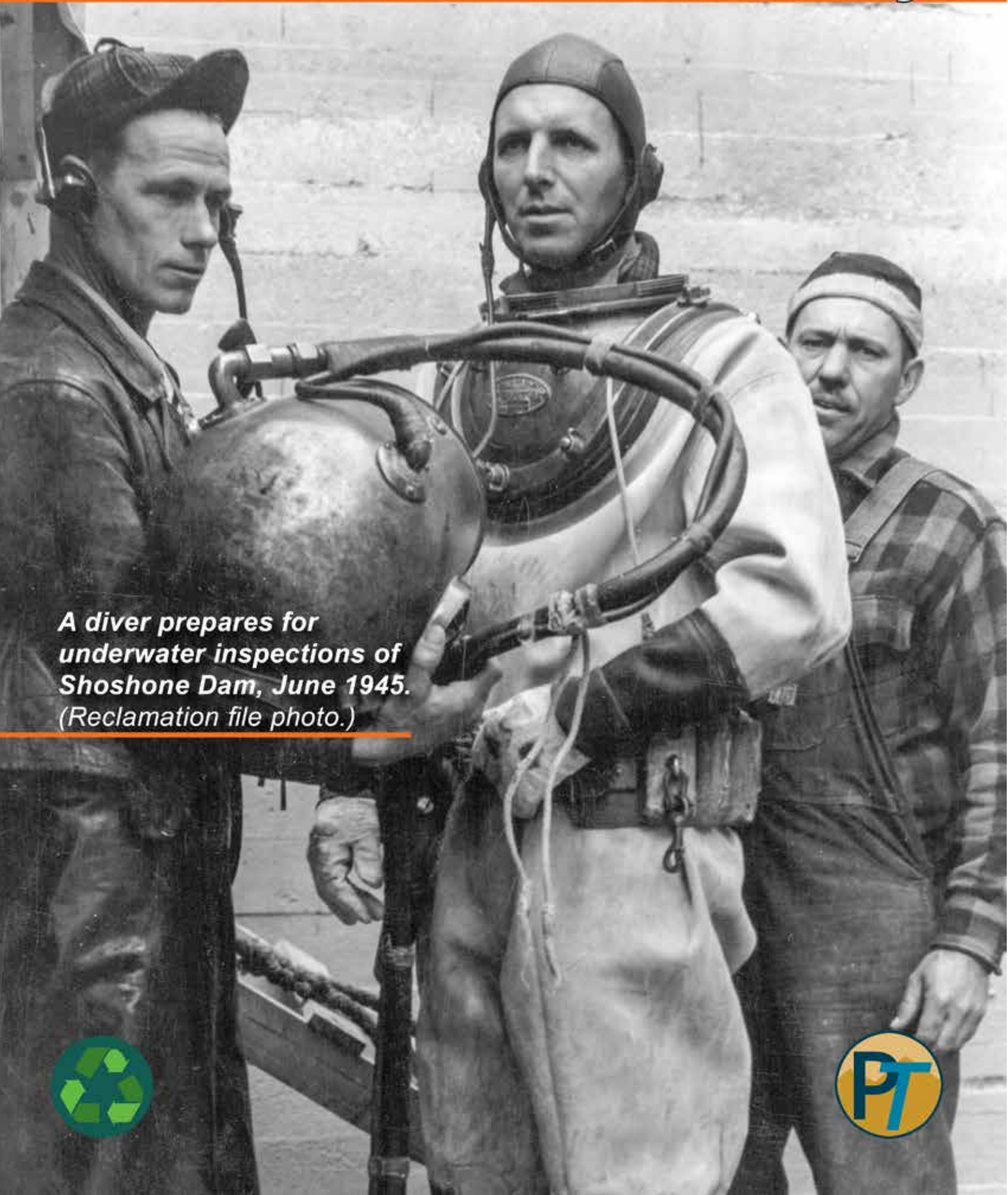
ACROSS

DOWN

All answers can be found in this issue.
Complete puzzle solution on inside front cover.



Back in Reclamation history



*A diver prepares for underwater inspections of Shoshone Dam, June 1945.
(Reclamation file photo.)*

