

PlainsTalk

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

Winter 2021-2022

- Photo Contest results
- Drought in the west
- New LMDT Plant
- Canyon Ferry refurbishments
- Mt. Elbert: Top performer
- COVID: A new normal
- Fish salvage efforts
- AVC update



— BUREAU OF —
RECLAMATION



Plains Talk
Winter 2021-2022

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Plains Talk encourages employee submissions, and assists with developing ideas. Questions about stories or photographic essays should be directed to the Plains Talk editor at (406) 247-7608.

Cover:
Sanford Dam Spillway in Texas.
Photo by Nic Garmon

This page:
Emergency Stilling Basin at Choke Canyon Dam in Texas.
Photo by Matt Warren

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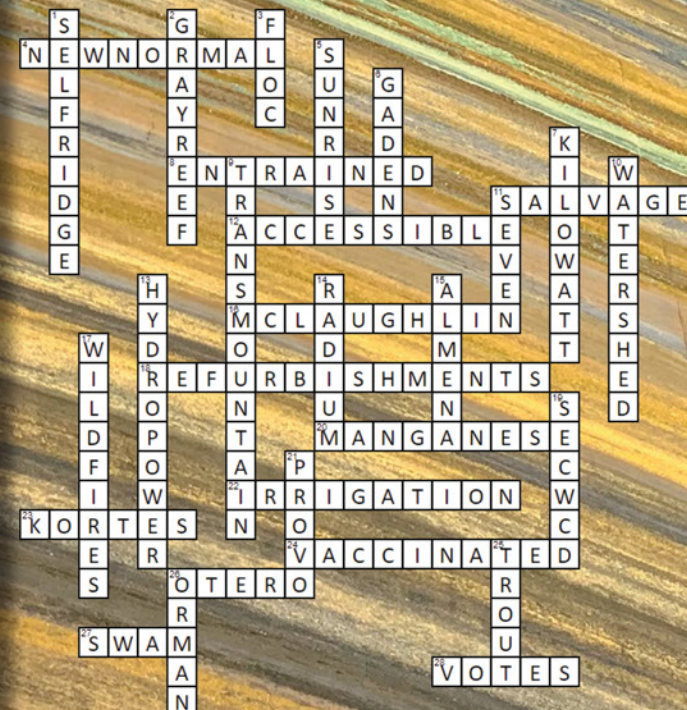
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Crossword

Crossword Solution





Thank you to all who submitted a photo to or voted in the
2021 Missouri Basin Photo Contest!



179

Eligible Entries



161

Total Votes

Missouri Basin Photo Contest brings a record number of entries

The 2021 Missouri Basin Photo Contest brought a record 179 eligible entries with 161 votes cast. From sweeping outdoor panoramic vistas to intimate close-ups of telworking pets, the photographic talents of MB staff were displayed through an incredible variety of images. Entries may show up in various Reclamation publications, websites, and other products.

We've included as many entries as space allows in this publication, and a gallery of all submitted images is available online at <https://www.usbr.gov/gp/multimedia>. This is a public-facing website, so be sure to share it with friends and family.



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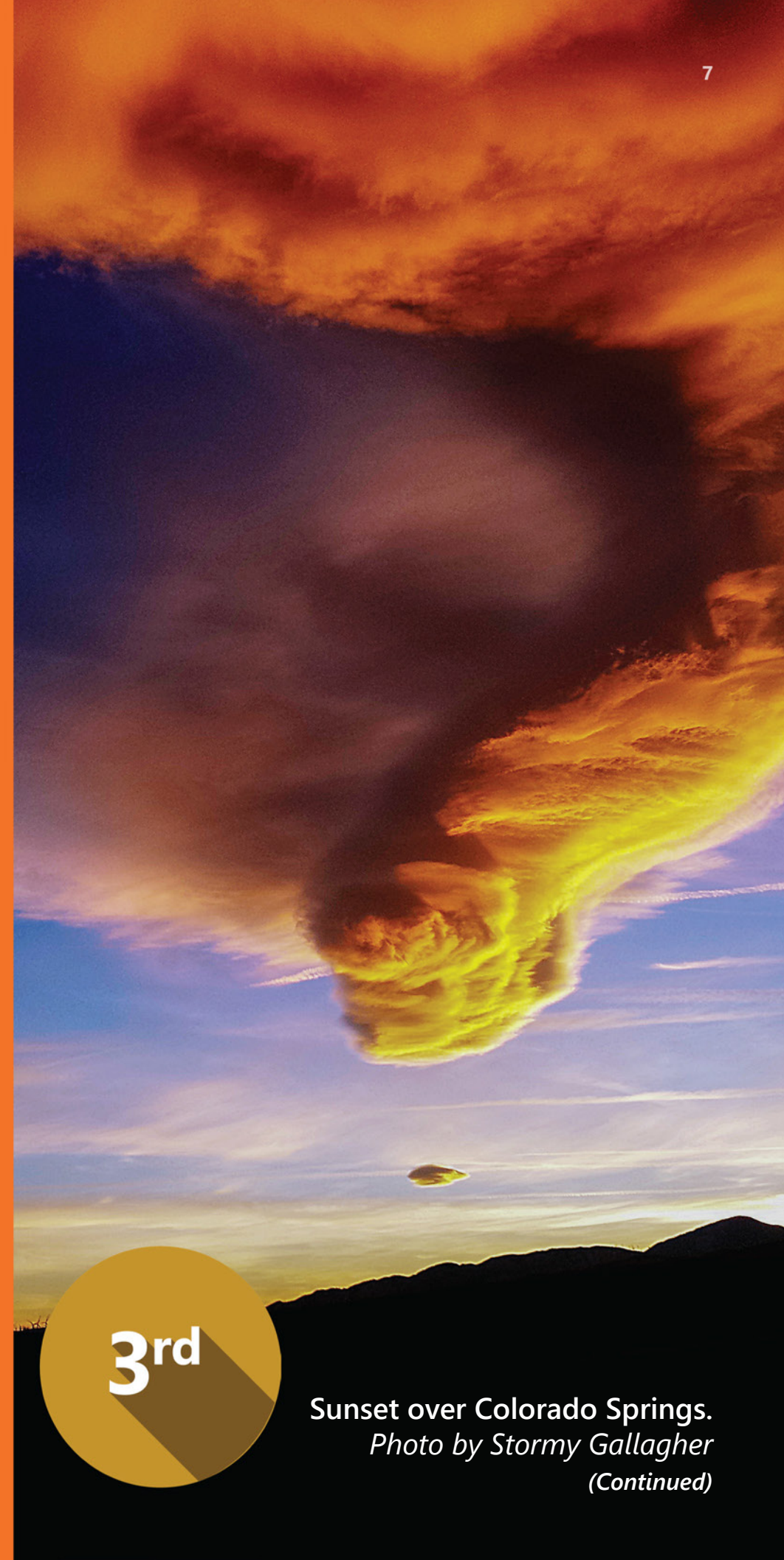
1st

Lake Estes at sunrise, Estes Park, Colorado.
Photo by Ron Duell
(Continued)



2nd

Sanford Dam Spillway in Texas.
Photo by Nic Garmon

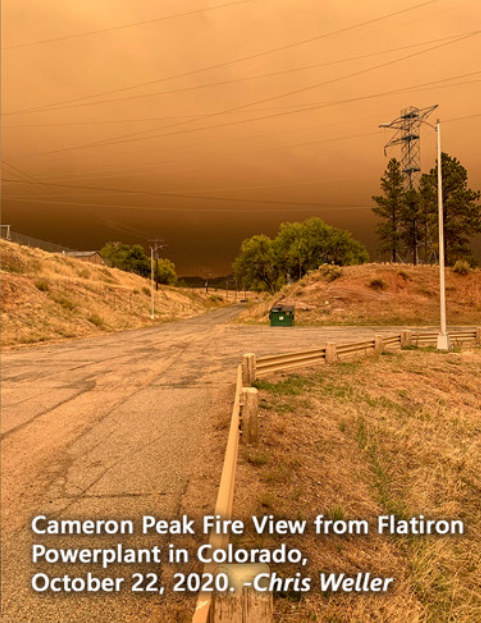


3rd

Sunset over Colorado Springs.
Photo by Stormy Gallagher
(Continued)



A tractor sits in the golden rays of evening in Billings, Montana. -Bryson Jones



Cameron Peak Fire View from Flatiron Powerplant in Colorado, October 22, 2020. -Chris Weller



Green Mountain Penstock in Colorado. -Mike Aspiazu



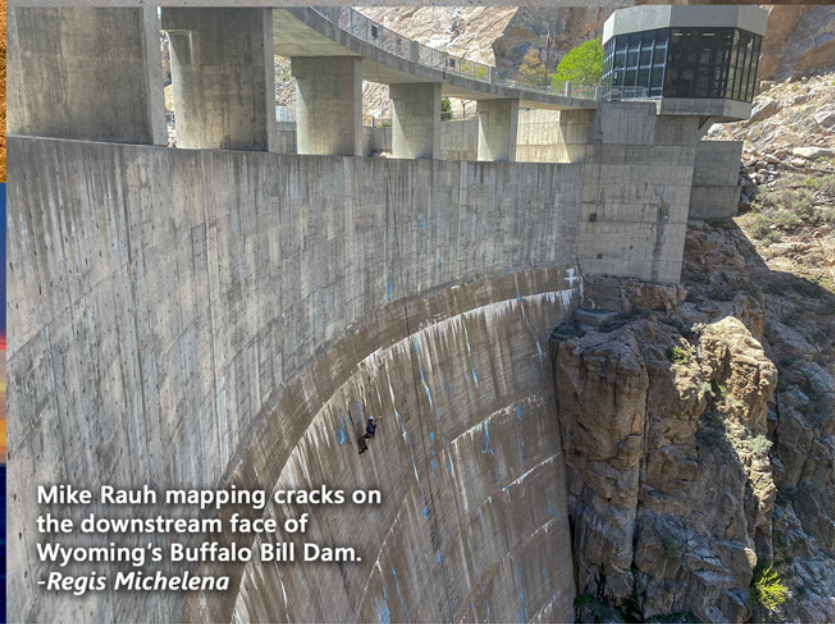
Sunset over the Sweet Grass Hills near Fresno Dam in Montana. -Marvin Morris



The man in the spillway, Box Butte Dam in Nebraska. -Samantha Bartz



Maintenance on rig seal gate at Boysen Dam in Wyoming. -Damon Cundall



Mike Rauh mapping cracks on the downstream face of Wyoming's Buffalo Bill Dam. -Regis Michelena



Summer Sunset. -Cherri Lashley



Wes Burkert, NKAO, surveying the outlet works conduit for Norton Technical Survey in Kansas. -Miles Morgan



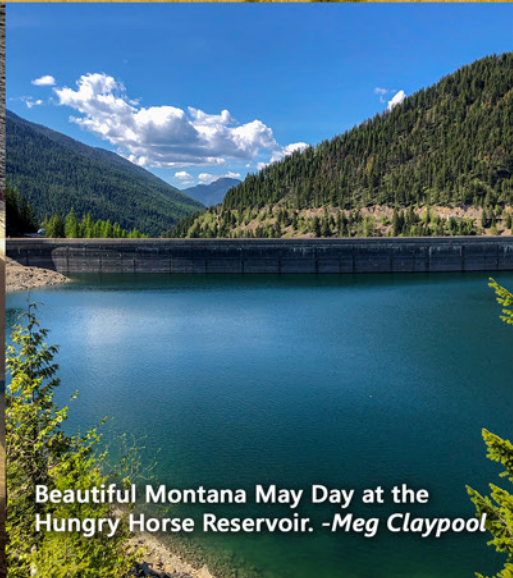
An iridescent insect emerging from a star flower bud, Yellowstone County, Montana. -Jennifer Hagenston



Wyoming's Guernsey Reservoir from Brimmer Point on October 1st 2021. -Hailey Glarrow



Andy Quiniones snaps a photo of the North Canal energy dissipator during the Comprehensive Review of Belle Fourche Dam in South Dakota. -Crystal Lesmeister



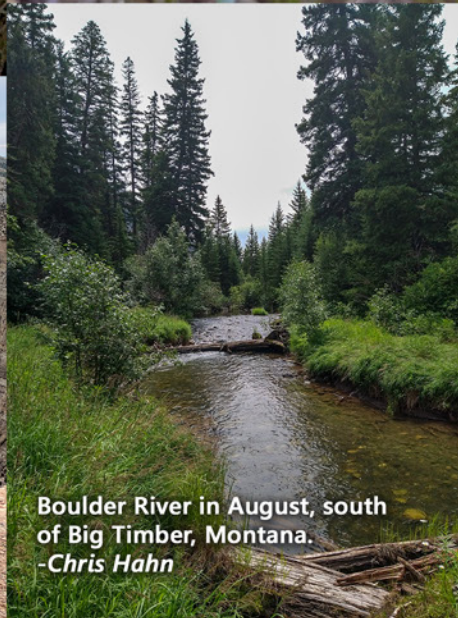
Beautiful Montana May Day at the Hungry Horse Reservoir. -Meg Claypool



Jeff Ticknor inspecting the irrigation canal slide gate inside the Kirwin outlet works stilling well in Kansas. -Adam Northrup



Devils Canyon constricting Bighorn Lake above Yellowtail Dam, Bighorn National Recreation Area, Wyoming. -Eric Hammers



Boulder River in August, south of Big Timber, Montana. -Chris Hahn

Collaborative construction efforts to bring new boat ramp to popular recreation destination **SUMMER 2022**

By Patience Mosbrucker

Dakotas Area Office, Public Involvement Specialist



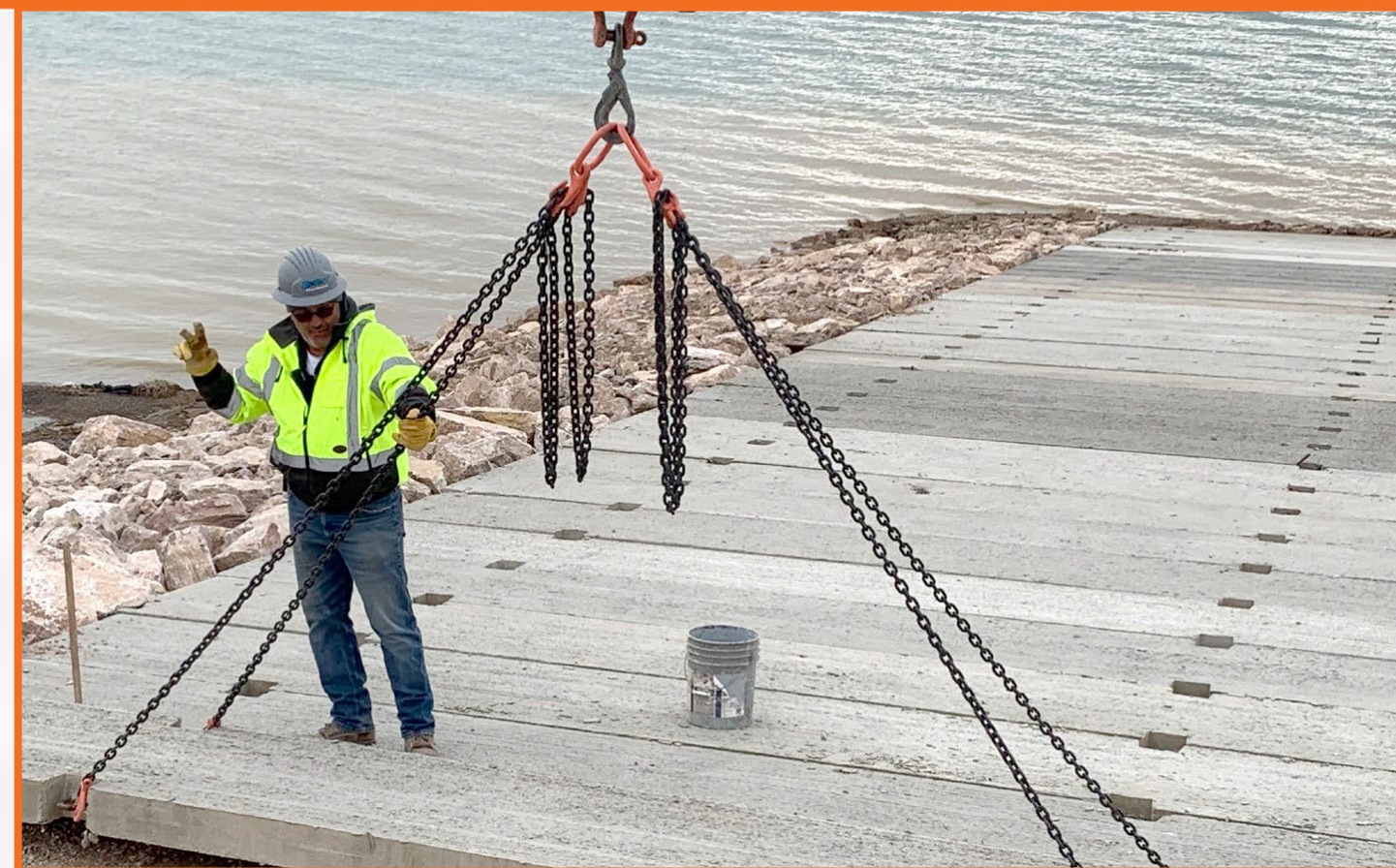
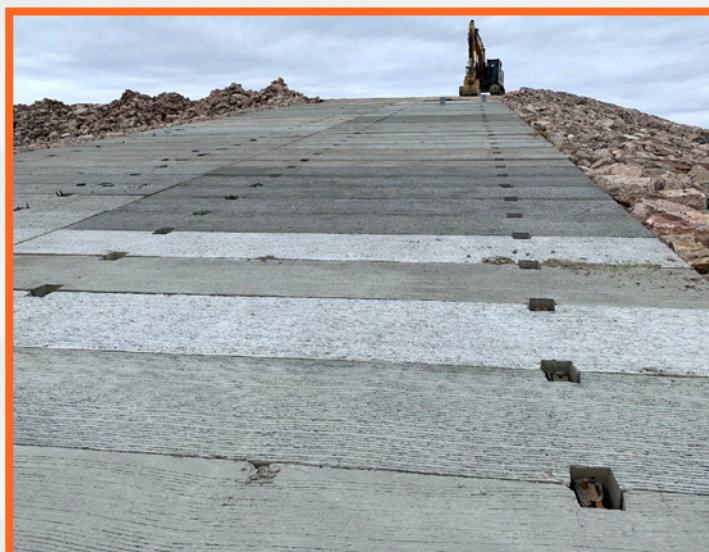
The Dakotas Area Office staff and Reclamation's Provo, Utah Office's construction crew are collaborating on work on the eastern tip of Gadens Point at Belle Fourche Reservoir in South Dakota. This collaborative effort is expected to continue through the winter. When complete, crews will have shaped and stabilized approximately 500 feet of shoreline, constructed a double lane boat ramp and a 40-unit parking area, and installed a vault toilet. The project is funded through a federal transportation grant.

The Belle Fourche Project is located north of the Black Hill in western South Dakota. The system includes a diversion dam, a storage dam, and canals, laterals, and drains to irrigate more than 57,000 acres of farmland. Following the passage of the Reclamation Act in 1902, the Belle Fourche Project became one of the first irrigation projects developed by Reclamation. When Belle Fourche Dam, known locally as Orman Dam, was completed in 1911, it was the largest earthen dam in the world. Immediately after construction, the reservoir became a recreation hot spot for locals and continues to be a popular recreation destination in the state.

In 2020, Reclamation completed a Resource Management Plan for Belle Fourche Reservoir.

During the public involvement process, the public identified the need for an additional boat ramp outside of Rocky Point Recreation Area. Both boat ramps and parking areas at Rocky Point Recreation Area become congested during the summer months, especially during weekends. An additional concern created by limited boat ramp access is that leaving the water during an all-too-common summer storm becomes a safety issue for all involved. The addition of the Gadens Point boat ramp will alleviate some of the Rocky Point boat ramp congestion and allow boaters to get off the reservoir more quickly in the event of a weather emergency.

The new Gadens Point boat ramp is scheduled to be open for public use in 2022.



Photos by Ryan Procter

Above: The planks for the new boat ramp at Gadens Point are set in place using an excavator at Belle Fourche Reservoir in South Dakota.

Left: View looking up the new boat ramp being installed at Gadens Point at Belle Fourche Reservoir in South Dakota.

Right: A truck backs down a ramp to offload and set planks for a new boat ramp being constructed at Gadens Point at Belle Fourche Reservoir in South Dakota.





COVID

A NEW NORMAL

By Brittany Jones, Missouri Basin Public Affairs

President Joe Biden issued an Executive Order mandating federal employees to be fully vaccinated against COVID-19 by Nov. 22, 2021.

With a vaccinated workforce, Bureau of Reclamation employees will begin transitioning according to the Return to the Workplace Phased Plan Jan. 3, 2022 - March 25, 2022.

The phased reentry will allow increased access to traditional workplaces and implement new and revised workplace policies.

"I'm excited to get back to a more normal work environment and look forward to getting to know more of you outside the virtual Teams environment. The 'normal' we'll transition to in 2022 will be different than the 'normal' we left behind at the start of the pandemic," Brent Esplin, Missouri Basin & Arkansas-Rio Grande-Texas Regional Director said. "Lessons we learned during the pandemic will inform future workplace plans and we will continue to leverage opportunities for flexibilities like remote work and telework where appropriate and in accordance with new DOI and Reclamation policy."

Reclamation Leadership Team members will lead the phased reentry, with supervisory positions and then non-supervisory positions to follow. During the reentry phase, local conditions will continue to inform continuous assessment processes that support increased levels of workplace occupancy. Reclamation will also transition eligible employees to new telework agreements and adjudicate requests for remote work. The length of reentry further provides Reclamation time to adjust policies and workplace operations relative to lessons learned throughout the pandemic and real-world

applications as we return to the workplace.

Employees, including facilities operating under the Protect-the-Pilot requirements, will operate under new telework agreements, remote work agreements, or regularly work from a Reclamation office or facility no later than the following dates:

- **Monday, Jan. 3, 2022** - Members of the Senior Executive Service and Senior Level positions
- **Monday, Feb. 28, 2022** - Supervisory positions and employees ineligible for post-reentry telework
- **Monday, March 28, 2022** - Non-supervisory positions

Maximum workplace flexibilities (maximum telework, availability of dependent care hours) will continue for many employees through Friday, March 25, 2022, or until rescinded by the Department of the Interior, whichever comes first.

"The Regional Leadership Board will meet Nov. 30 to outline regional and area office plans," Esplin said. "I anticipate those plans being solidified over the following few weeks and look forward to sharing more information with you in the mid-December timeframe."

For more information, please contact your supervisor or visit Reclamation's New Normal Information SharePoint site (linked on the front page of the Missouri Basin Intranet page) which provides a comprehensive overview of reentry, including updates to policy and procedure, timelines, key dates, and links to resources for employee support throughout reentry.

Return to the Workplace Phased Reentry Plan

Monday, Jan. 3, 2022:

Members of the Senior Executive Service and Senior Level positions

Monday, Feb. 28, 2022:

Supervisory positions and employees ineligible for post-reentry telework

Monday, March 28, 2022:

Non-supervisory positions

Fish-able Fun with Reclamation

By Patience Mosbrucker, DKAO



The Dakotas Area Office hosted Reclamation's first Fish-able Fun with Reclamation event at Heart Butte Reservoir in North Dakota. The pilot program continues Reclamation's tradition of providing recreational fishing opportunities at Reclamation reservoirs for underserved youth, with an emphasis on those with disabilities who may never have experienced the joys of fishing. The event was of no cost to the participants.



The Schatz Point Handicap Accessible Fishing Pier at Heart Butte Reservoir was funded by the Outdoor Heritage Fund, Tri-Cities Joint Job Development Authority and the Bureau of Reclamation to provide recreational access, inclusion and equitable opportunities to Americans living with disabilities.

Reclamation partnered with the non-profit organization Pride Incorporated to provide a day of fishing and fishing education to 20 students. Among the many activities, the students learned how to bait a fishing hook, how to cast, and about water and canal safety.



Photos by Laura Hertz

Water for Selfridge

By Patience Mosbrucker, DKAO

PLAINS TALK - WINTER 2021-2022

On Nov. 4, 2021, the community of Selfridge, North Dakota, received water for the first time from the Standing Rock Rural Water Supply System. Selfridge is on the Standing Rock Indian Reservation and has an estimated population of 219 people. Preparations for the project began in May 2013, when Reclamation's Standing Rock program's engineer initiated designs on both the McLaughlin pump station and the Selfridge pipeline.

Reclamation collaborated with the Standing Rock Rural Water

PLAINS TALK - WINTER 2021-2022

Supply System, Indian Health Service, project engineers, and the Standing Rock Sioux Tribe to bring water services to the community.

The McLaughlin pump station was constructed to pump water from McLaughlin, South Dakota, to the Selfridge, North Dakota, water tank. The McLaughlin pump station was funded by Reclamation and designed by the Standing Rock Rural Water Supply System engineer. Construction on the McLaughlin pump station began in 2019 and was substantially complete in April 2021.

The Selfridge water tank is a 300,000-gallon pedestal spheroid and was funded by Reclamation and designed by Indian Health Services. Construction of the water tank began in October 2019 and was substantially complete in May of 2021.

This portion of the Standing Rock Rural Water Supply System pipeline consists of 20 miles of 8-inch main transmission pipeline that runs between McLaughlin, South Dakota, and Selfridge, North Dakota. The pipeline was funded by Reclamation and designed by Standing Rock Rural Water Supply System engineer. Construction of the 20-mile pipeline began this past summer. The final pipe connection to the city of Selfridge's system brings this project to completion.

"Reclamation is proud to provide clean and reliable water services to support our Native American partners in Selfridge," said Joe Hall, Dakotas Area Manager.



Photos by Chris Haines

Left: Tom Kappes, field observer for Standing Rock Rural Water Supply System, looks on as an operator for Wagner Construction assembles the final pieces of pipe to make the long-awaited connection on the town of Selfridge water pipeline to the Standing Rock Rural Water Supply System water pipeline.

Right: The water tower in Selfridge, North Dakota.





DROUGHT

in the west

2021 Statistics

- In July 2021, 89% of the west was classified as being in a drought
- Over the summer, western states experienced record-shattering temperatures and dry conditions
- Most streamflow and reservoir levels were well-below average
- 2021 has seen more than 48K wildfires which have burned over 6.5M acres
- NOAA predicts drought conditions to persist in 2022

Future Effects

- Increased wildfire risks
- Crop failures & livestock damages
- Loss of fish & wildlife
- Increased food costs
- Decreased hydropower generation
- Fewer recreation activities
- Potential widespread water restrictions
- Economic hardships
- Population migration

Conservation Efforts

- 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

MTAO & partners conduct fish salvage efforts at end of irrigation season

Photos by Seth Joramo, Missouri Basin Geologist

Reclamation teamed up with members from U.S. Fish and Wildlife Service and Tribal Fish and Wildlife to conduct fish salvage efforts at Sherburne Dam in Montana at the end of irrigation season. Team members captured fish that became entrained in dam structures during times of low water, and then relocated them to other water bodies where they are better able to survive the winter.





UPDATE

By Elizabeth Smith

The long-awaited construction of the Arkansas Valley Conduit (AVC) is soon to reach another milestone in development as the completion of “segment one” approaches.

The project has been divided into “segments” from west to east for the purposes of communicating the overall progress of the project. The objective for segment one is to generate and then sign a contract between Reclamation, Southeastern Colorado Water Conservancy District (SECWCD), and the Board of Water Works of Pueblo (Pueblo Water).

Negotiations are expected to conclude by the end of calendar year 2021, and once signed the contract will allow the conveyance of AVC water from Pueblo Reservoir 15 miles east to a connection point between the AVC pipeline and the Pueblo Water system.

“This contract represents the completion of a big part of the AVC without the federal government having to put a single foot of pipe in the ground. We effectively eliminated over 20 miles of large diameter pipeline that would have had to go all the way around the City of Pueblo, said Sam Braverman, the AVC Project Manager for Reclamation. “This gets us much closer to actually delivering water to communities that are badly in need of it,” said Braverman.

This creative approach is expected to save the project an estimated \$100 million, and many years of construction as compared to the original plan of building a pipeline around the City of Pueblo.

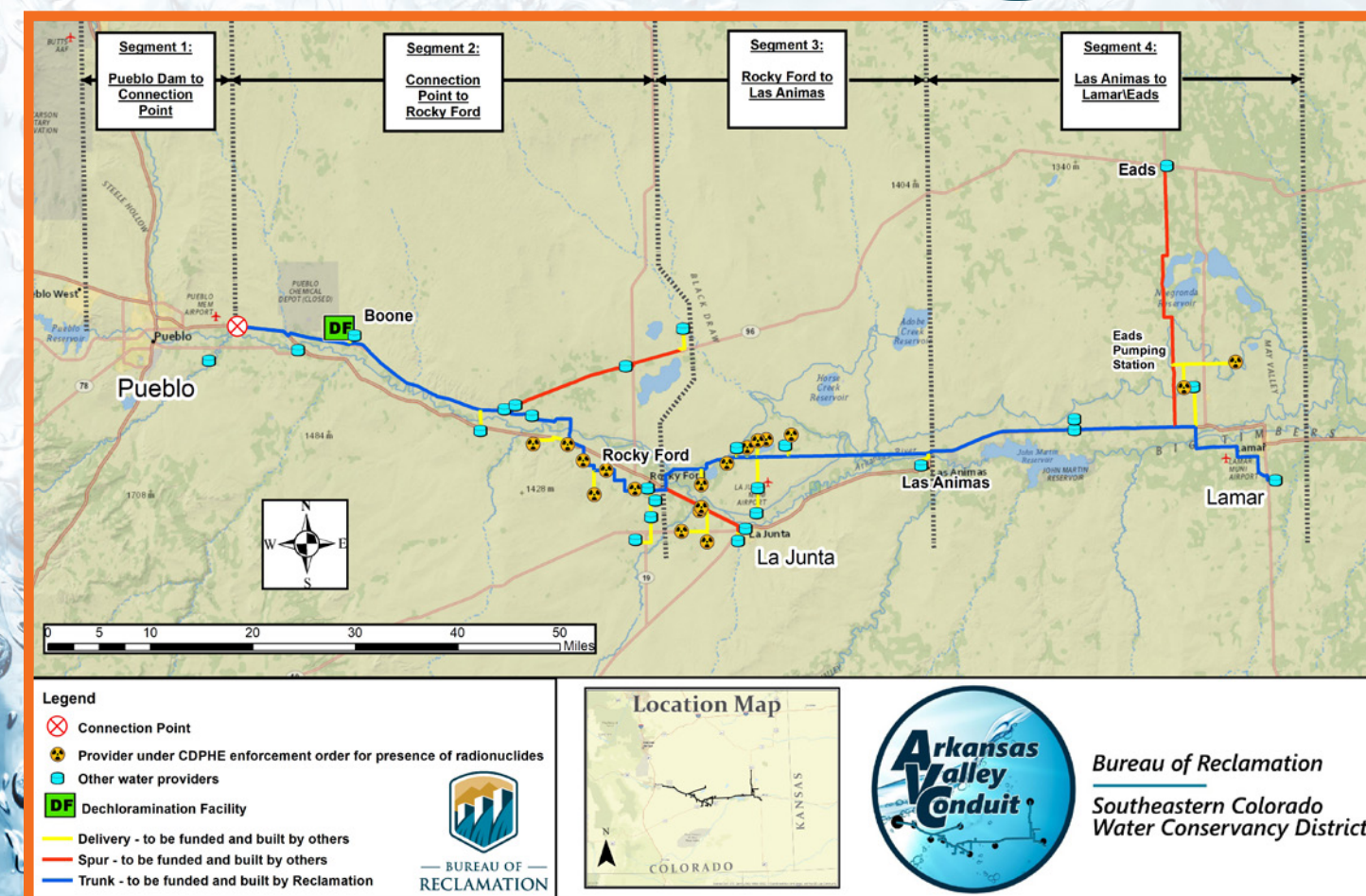
Segment two begins the federal construction project which picks up at the connection point to Pueblo Water and moves AVC water east to project participants. The first construction contract



is expected to be awarded in 2022 with the first participants beginning to receive AVC water in 2024.

Participants will be connected to the AVC trunk line as it reaches their area - the areas include water providers in Bent, Crowley, Kiowa, Otero, Prowers, and Pueblo counties. This gradual connection process will allow communities whose

drinking water supplies are contaminated with radionuclides such as radium and uranium to receive clean drinking water years sooner than the completion of the entire AVC.



Mt. Elbert Powerplant is 2020 top performer

By Karl Thiel, Clark Bishop, and Mike Maroncelli



The Mt. Elbert Powerplant was recognized by the Electric Utility Cost Group (EUCG) Hydropower Productivity Committee (HPC) as a top performer in the 2020 Pump-Generating peer group.

"The EUCG provides performance benchmarking services to HPC members, comprising public and private hydropower utilities from across North America and beyond," said Clark Bishop, Strategic Energy Initiatives Program Analyst, of Reclamation's Denver Power Resources Office.

"Each year, EUCG identifies top performers across key cost and performance metrics. These metrics include operations and maintenance expenses per megawatt and plant forced outage and availability factors. Mt. Elbert was identified as a top performer for the 2020 Pump-

Generating peer group," said Bishop.

Performance benchmarking is a management tool, allowing Reclamation to identify opportunities to adopt and validate best practices in coordination with industry peers for the benefit of our customers.

Each year, Bishop works with regional coordinators to report Reclamation plant data to the EUCG database. All submissions to the EUCG database undergo a thorough peer review to ensure data is accurate and consistent with EUCG HPC reporting guidelines.

"The team at Mt. Elbert plant embodies Reclamation's mission, which is to manage, develop, and protect water and related resources in an environmentally and economically

sound manner in the interest of the American public," said Karl Thiel, Power Operations and Maintenance Manager at Mt. Elbert. "I couldn't be prouder of this team especially during this challenging season of drought when conservation efforts are forefront in everyone's daily practices," said Thiel.

Mt. Elbert is situated near the Rocky Mountain town of Leadville, Colorado as a transmountain water delivery feature. The average amount of water used for power generation each year is 164,500 acre-feet, which flows through the plant and generates approximately 280,000 gross megawatt-hours, annually. This is the equivalent of the annual demand for over 26,000 US households. When not being used to generate power, the two 100 megawatt generators can be run as 135 megawatt pumps for returning water to the upper reservoir, where it is stored to provide for future power customer and system generation needs.

Mt. Elbert is a pump-generating facility, which means that it has the ability to reuse water for generation by pumping the water from a lower reservoir to a higher reservoir during times when electrical power is at a low cost or surplus to

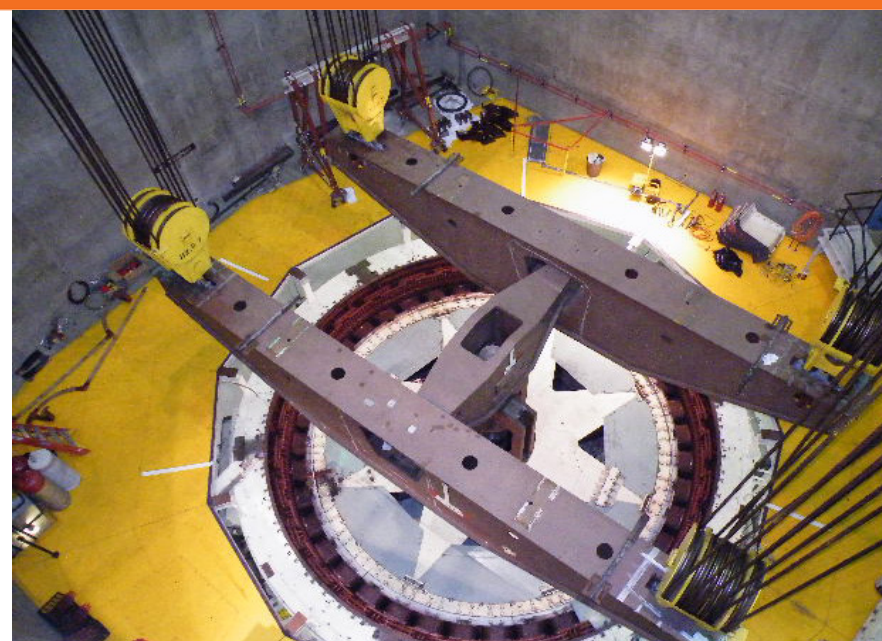
the electric grid. It then releases the water back through the generators from the upper reservoir to the lower reservoir when electric grid demand is at a higher level. The power generated at Mt. Elbert derives from water originally pumped from Twin Lakes, which acts as the lower reservoir, and also from supplemental water delivered from Turquoise Lake to the Mt. Elbert forebay (upper reservoir).

Mt. Elbert is the only single purpose Pump-Generating Hydro (PGH) facility within Reclamation's Missouri Basin (MB) hydropower fleet and is a critical component that allows the Western Area Power Administration to meet their balancing authority obligations in the Rocky Mountain Region.

Mt. Elbert provides dependable renewable energy as well as electric grid support services (i.e., ancillary services). These ancillary services help ensure a safe, reliable electric grid – and support the integration of intermittent, renewable energy resources such as wind and solar into the grid. Accordingly, Mt. Elbert and Reclamation's hydropower fleet are poised to play a critical role in the Department of the Interior's clean, renewable energy *(Continued)*



Mt. Elbert Powerplant



Mt. Elbert rotor in unit



Rotor being removed from unit



Rotor removed and on plant floor

(Continued from previous page)

and climate change initiatives.

"Similarly, Mt. Elbert is considered an open-type PGH facility versus the more conventional type of closed system," said Michael Maroncelli, Manager of the Missouri Basin Regional Power Office.

"In a closed PGH system all the water from the upper reservoir is run down through the generator and is then pumped back up to refill the upper reservoir for use through the generators again. In an open PGH system not all water that is released through the generators is pumped back to the upper reservoir for future use; some of the water runs through the generator and is released for downstream use," said Maroncelli.

Mt. Elbert is not only beneficial for generation and other services it can provide to the electrical system. It is a valuable part of the overall Fryingpan-Arkansas water supply project, which provides water for downstream irrigation and municipal needs in southeastern Colorado. This is a very distinctive quality that is very beneficial within the MB Region, and which helps support Reclamation's mission.

"The management at Reclamation's Eastern Colorado Area Office and Mt. Elbert are fully engaged and committed to making the facility a success," said Maroncelli. "They have developed and are starting to implement some new strategies and approaches that will control costs while increasing the value of the facility. This will ensure that Mt. Elbert continues to be an asset not only to Reclamation, but to the electrical system for years to come."



Mt. Elbert View of Tailrace (downstream of plant)

New Leadville Mine Drainage Tunnel Treatment Plant

By Elizabeth Smith

with technical contributions from Jenelle Stefanic and Mark Nance



For nearly three decades, Reclamation has operated the Leadville Mine Drainage Tunnel Treatment Plant (LMDT) to remove lead, zinc, manganese, iron, and other heavy metals from the mining impacted water which emanates continuously from the 2-mile-long tunnel. Treated, clean water is discharged to the headwaters of the Arkansas River in accordance with the strict guidelines of their National Pollutant Discharge Elimination System (NPDES) permit, which is administered by the Environmental Protection Agency (EPA).

Over this long course of successful operation, the LMDT has nearly reached its expected service life, generally accepted as 30 years in the water treatment industry.

"Designs to build a new plant are almost to the 90 percent completion stage, and the team will begin acquisitions next year for a new water treatment plant for a full-scale replacement of the facility," said Jenelle Stefanic, Water Treatment Plant Supervisor for the LMDT.

Because Reclamation now has over 25 years of data and thus a robust understanding of the hydrology at this site, all the

accumulated information is being used to build a new treatment plant that will offer increased efficiency and operational flexibility, enhanced safety attributes, and improved ability to extend the service life of the facility by providing greater maintenance and replacement capabilities.

Stefanic credits Mark Nance, the Lead Project Manager for the Leadville Water Treatment Plant replacement project, and the Technical Service Center (TSC) team for the design.

Nance's engineering team of over 100 people at the TSC has been working to make the water treatment facility operate

optimally since 2014. The team started improvements in 2016 by designing a replacement chemical storage facility to meet 2012 International Fire Code compliance concerning storage of a large volume of sulfuric acid, which is used in the treatment process.

Stefanic is pleased with how well the TSC's 15 different design groups have leveraged the lessons learned over the past 30 years of experience, and the incorporation of this knowledge into the design for the up-and-coming construction of the replacement water treatment plant.

The project will expand the usable area of the property, said Nance, but the project will also consume some of that additional space with larger buildings. The architectural design considers its visual impact by installing the largest structure in the hillside to blend more with the natural landscape.

Safety requests have been a paramount aspect to the design as well, according to Stefanic.

"There will now be more versatility in the ways people can perform work functions – for example, there will be more maneuverability within the floor plan, additional fall protection anchor places to work safely from high elevations, and noise reduction technology included in the equipment," explained Stefanic.

The LMDT treatment process employs a method called Chemical Physical Precipitation to remove the metals from the water. The water is first treated to remove dissolved carbon dioxide from the water. The "chemical physical" portion of the process is to raise the pH, and then water flows through a high-density sludge recycle process that recycles settled sludge for metals to stick to, to form what's called a "floc" particle. The metal hydroxide floc particles then settle, separating solid sludge from the clear water, which flows from the top of the tank and is polished by sand filtration before being discharged to the river.

The new treatment plant design will allow for the chemical storage to be completely separate from the work area. The sludge dewatering presses will be indoors and contained so that any leakage will remain contained and be safely

returned to the treatment flow.

"The new plant will provide a longer life expectancy with room for growth," said Stefanic. "They've (TSC) done a marvelous job of thinking through and working through that design with us," she said.

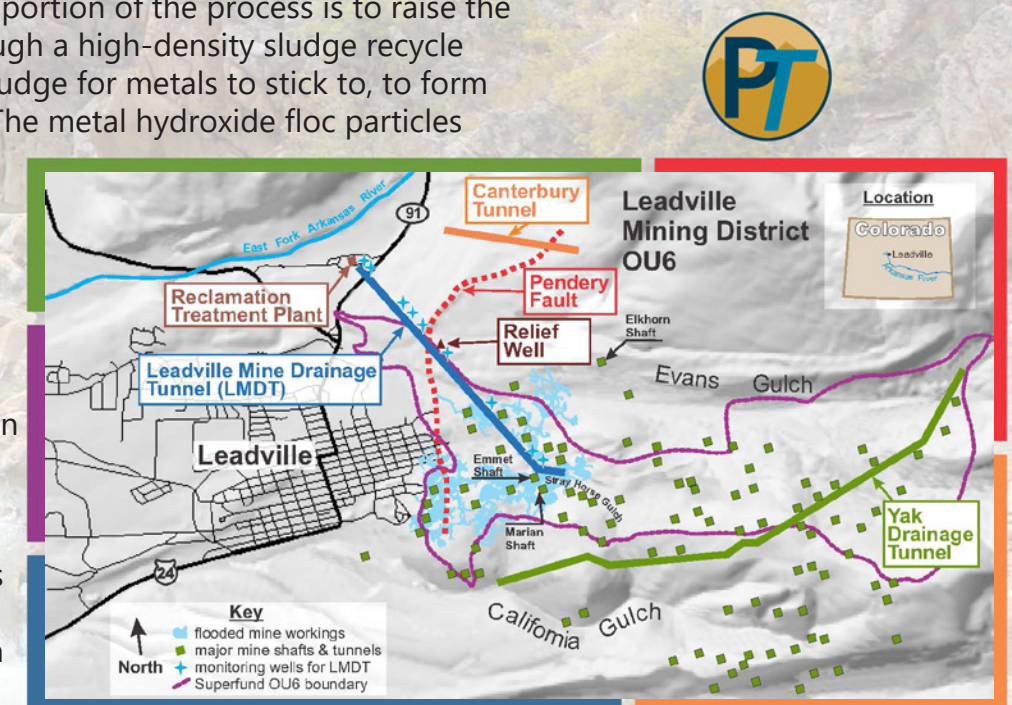
This coming spring, the team will reach the 90 percent design submission mile marker, and then the 100 percent design will follow a few months after that.

"We're incorporating comments from the region to make sure we're representing the variety of interests on the project," said Nance.

The design is scheduled to be completed in the summer of 2022 with the construction contractor breaking ground in Leadville in the summer of 2023 and completing the project around 2027.



Draft rendering looking southeast.



Winter flow plans for North Platte

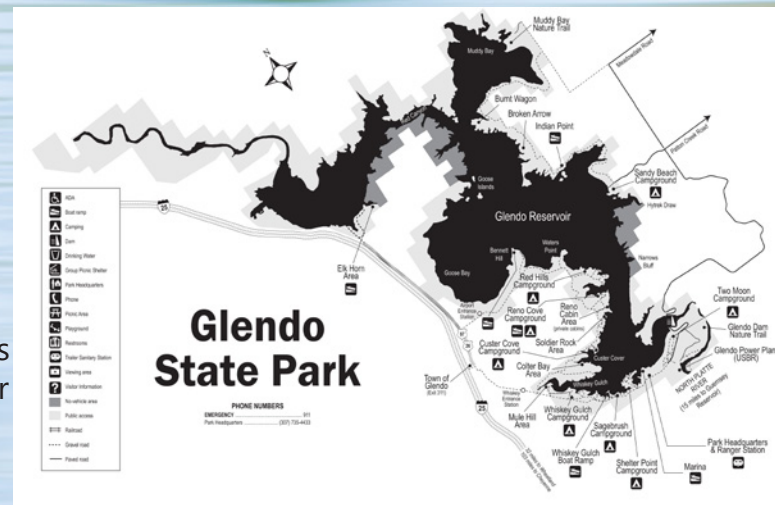
Story and photos by
Hailey Glarrow



Glendo Reservoir

The Wyoming Area Office will be running slightly lower-than-normal flows in the North Platte River between Gray Reef Dam and Glendo Reservoir from October 2021 through March 2022 due to drought conditions and to conserve for contract water deliveries in 2022.

North Platte River flows below Gray Reef Dam are normally decreased during September to 500 cubic feet per second (cfs) and that flowrate is maintained through the winter. The releases from Gray Reef Dam and natural inflows are stored in Glendo Dam downstream until the following spring and summer when they are released to water contractors. This year, Reclamation decreased Gray Reef releases to 450 cfs in October in an effort to store water supplies in the larger reservoirs in the upper North Platte System.



The 2021 Water Year (October 2020 – September 2021) on the North Platte River saw uncharacteristically low inflows in the upper North Platte system, which resulted in reduced total North Platte system carry-over storage to 86 percent of the average.

Glendo Reservoir storage is slightly above average, and the small reduction in Gray Reef releases for the winter will decrease the likelihood of the need to release water in excess of water deliveries from Glendo Reservoir in 2022. The small reduction in winter flow should improve the likelihood of Reclamation being able to conduct a flushing flow to improve trout habitat conditions, if requested by the Wyoming Game and Fish Department. Reclamation tries to accommodate these requests when possible without loss to contracted water supply or power generation.

Reclamation operates its seven reservoirs on the North Platte River as a system and provides irrigation supply to hundreds of thousands of acres, power generation supplying tens of thousands of homes, municipal and industrial water supply,

recreation, and other benefits. In preparation for another year of drought, Reclamation is proactively modifying water operations for the 2022 Water Year.



Gray Reef Dam



Canyon Ferry Powerplant refurbishments to begin July 2022

By Brittany Jones

The Bureau of Reclamation awarded an \$18,843,500 contract to Andritz Hydro Corporation to replace and refurbish components of three electric generators at Canyon Ferry power plant. The work will be done in \$2-4 million increments over a three-year period starting in July of 2022.

"Since its inception, the powerplant at Canyon Ferry has sustainably generated clean energy," said Montana Area Manager, Ryan Newman. "This necessary rehab work will ensure these critical

pieces of infrastructure continue operating safely and efficiently, generating millions more watt-hours of electricity well into the future." The new and refurbished equipment will allow for the safe, reliable, and continued operation of the generating units that produce hydropower.

Construction of Canyon Ferry power plant started in 1949 and was completed in 1954. Unit 1 began operation in December 1953, and Units 2 and 3 in March 1954. The Canyon Ferry Unit is a multi-purpose project, which

provides low-cost power generation and makes an important contribution to the flood control, irrigation, and power supply in the upper Missouri Basin.

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



Yield models for two OTAO reservoirs updated



By Renee Babriacki

Oklahoma-Texas Area Office (OTAO) staff completed technical memorandums (TMs) supporting updates of two water supply yield models for Reclamation's Lugert-Altus and Tom Steed Reservoirs.

The models were updated as part of the Upper Red River Basin Study (URRBS), a collaborative effort between Reclamation, Oklahoma Water Resources Board (OWRB), and local water districts to evaluate future strategies that improve water management and drought resiliency in southwest Oklahoma. The TMs document various data sources and methods used by Reclamation over the years to calculate reservoir yield, beginning with pre-construction estimates and culminating in the most recent update.

The reservoir yield calculations employ new statistical methods that incorporate over 90 years of observed climatic, hydrologic, and sedimentation data. The yield estimates also account for future stream depletions caused by a range of potential ground- and stream- water

development scenarios. The accounting of these depletions was largely led by the OWRB, which commissioned development of a numerical groundwater flow model by the United States Geological Survey on the underlying North Fork Red River alluvial aquifer, as well as a network streamwater allocation model (SWAM) on the North Fork Red River.

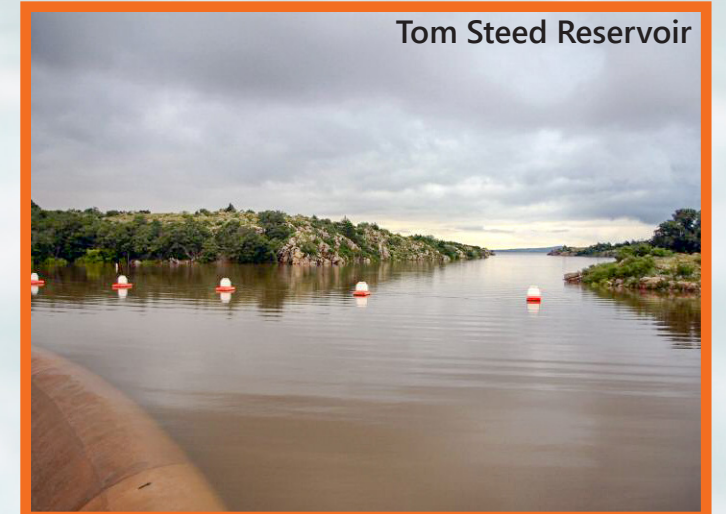
The OWRB's SWAM was calibrated using datasets developed and used by Reclamation during the yield model updates. This was critical in demonstrating the validity and consistency of reservoir storage and yield estimates calculated by the SWAM as part of the URRBS.

Because the datasets and yield estimates produced by Reclamation and OWRB have the potential to change Oklahoma water policy and inform regulatory decision-making by the OWRB, the TMs were determined to be "influential" and peer reviewed in accordance with Reclamation's Policy CMP P14, "Peer Review of Scientific Information and Assessments."

Altus-Lugert Reservoir



Tom Steed Reservoir



NKAO: A year of accomplishments

By Prudence Crampton



✓ **Joshua Neuffer and Nik Johanson conducted sampling for aquatic invasive species in 10 reservoirs.** Managing partners from Kansas and Nebraska assisted in the sampling process. Sampling for aquatic invasive species is part of our mission to contain and prevent the spread of these species into Reclamation waters.

✓ **Nebraska-Kansas Area Office (NKAO) staff met with the Kansas City District, U.S. Army Corps of Engineers (USACE), Kansas Water Office (KWO), and Kansas Department of Wildlife, Parks and Tourism (KDWP) to discuss the Corps' Kansas River Reservoirs Flood and Sediment Study (Watershed Study).** The study area includes the Kansas River Basin in parts of Kansas, Nebraska, and Colorado. The Watershed Study will investigate water and related land resource issues and opportunities in the Kansas River Basin to recommend comprehensive, long-term, and sustainable water resource solutions and management.

✓ **The Almena Irrigation District (AID) was selected for a WaterSMART award under its Water Energy Efficiency Grant (WEEG) for \$478,620. AID is a small Irrigation District, located in Kansas, with a command area of 5,763 acres.** Their South canal serves 1,052 acres. This is AID's first attempt to invest in water conservation activities with NKAO providing Technical Assistance. The Scope of Work is to convert most of the South canal. It will consist of installing approximately 34,685 feet of buried pipes, seven floating pumps on

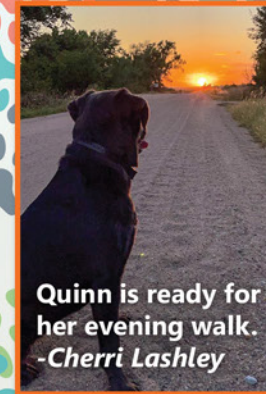
Prairie Dog Creek, 26 flow meters and ancillary parts and instrumentation, to enhance the efficiency of the water delivery system and to considerably lessen the dependence on water releases from Norton reservoir.

✓ **NKAO staff rose to the challenges of drought, to ensure carryover supplies to be sufficient to provide average supplies in 2022. NKAO Water Operations Group is responsible for overseeing the operation of 16 dams and reservoirs located in Colorado, Nebraska, and Kansas.** Like many other states within the Region, Nebraska and Kansas have experienced above average temperatures and below average precipitation for much of the irrigation season. NKAO water operations staff continued to coordinate closely with our irrigation districts to provide efficient and timely irrigation deliveries.

✓ **NKAO consulted with four Tribes regarding the Medicine Creek Resource Management Plan (RMP). In October, NKAO staff shared the final draft of the Medicine Creek Resource Management Plan to interested parties including the Nebraska Game and Parks Commission, the Nebraska State Historic Preservation Officer, and four Native American Tribes.** The NKAO's natural resources specialists and archaeologist coordinate these consultations in order to streamline compliance requirements under the National Environmental Policy Act of 1969 and the National Historical Preservation Act of 1966. After receiving final comments, NKAO will publish this Resource Management Plan.

Fuzzy co-workers and neighbors

The 2021 Photo Contest brought a number of entries featuring pets and wildlife



Quinn is ready for her evening walk.
-Cherri Lashley



Early morning visitor peeking in my window at Flatiron Powerplant in Colorado.
-Sonja Rosenberger



Wailynn catches a mouse while teleworking.
-Rita Frasure



Just having fun at Fremont Canyon, Wyoming, on the weekend.
-Damon Cundall



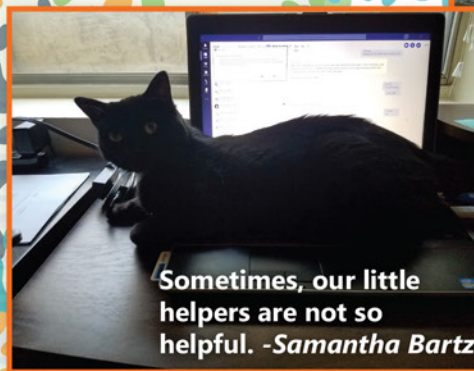
A dog and her boy.
-Laura Hertz



A very large black bear with cubs approached as I launched a raft on the Big Horn river. They proceeded to swim across the river just below us.
-Kim Roccoforte



Guarding Pueblo Reservoir in Colorado.
-Roy Vaughn



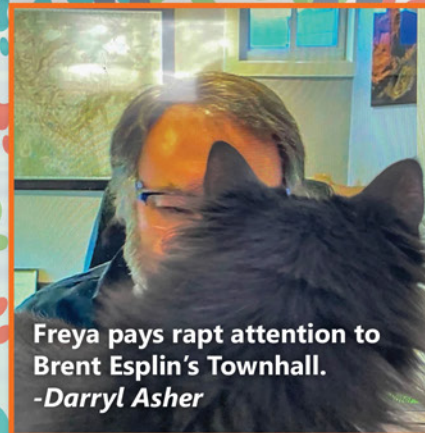
Sometimes, our little helpers are not so helpful.
-Samantha Bartz



Momma cow curious about the visitors to Glendo in Wyoming.
-Hailey Glarrow



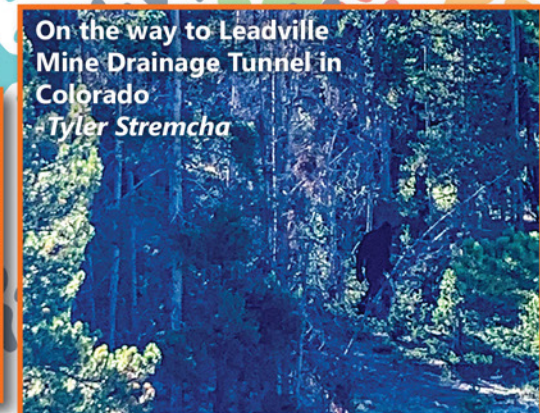
Bodie the dog enjoying a day of recreation on Seminoe Reservoir in Wyoming.
-Jeff Rieker



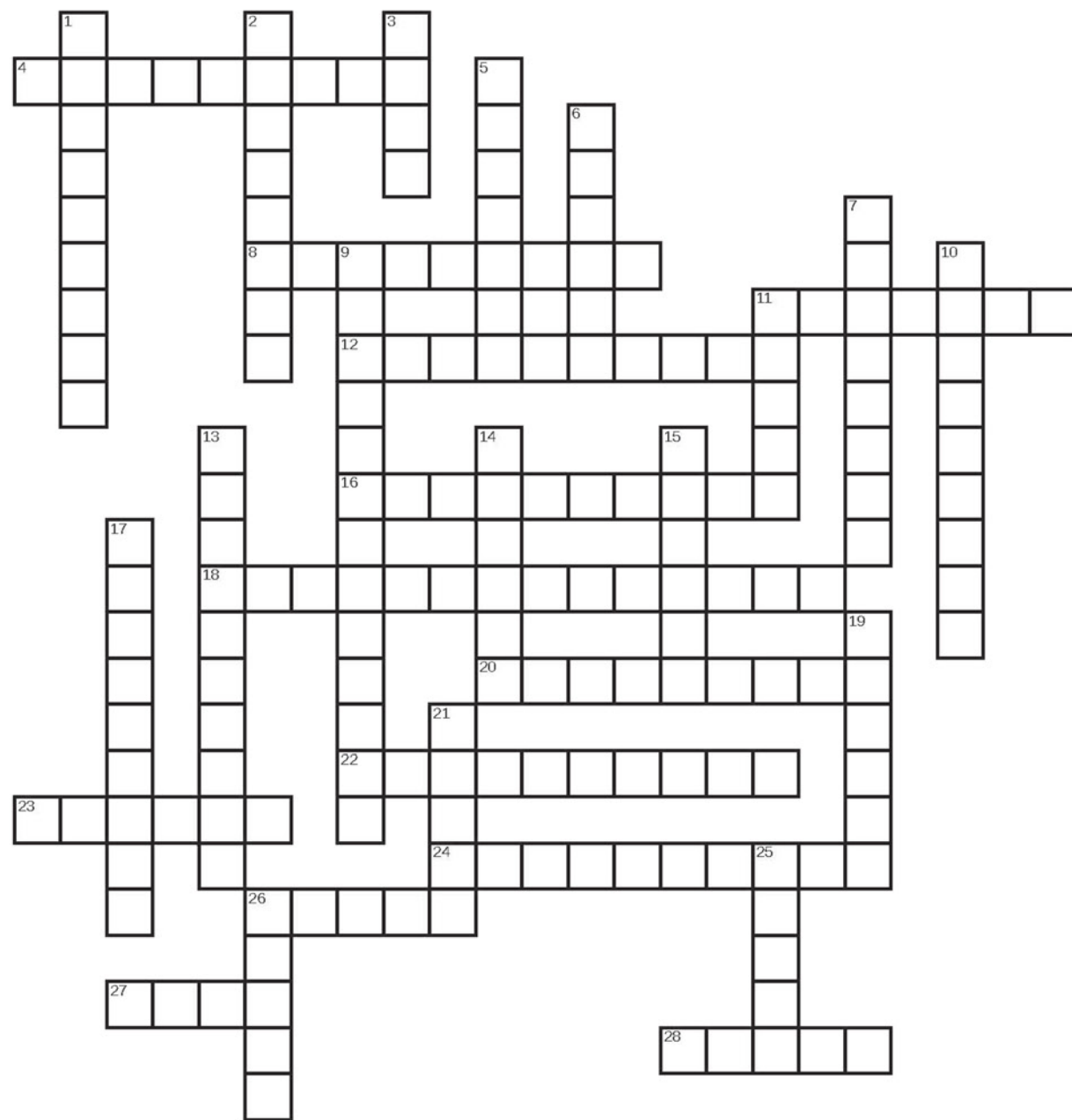
Freya pays rapt attention to Brent Esplin's Townhall.
-Darryl Asher



Deer in the foothills
-Dale Lentz



On the way to Leadville Mine Drainage Tunnel in Colorado
-Tyler Stremcha



CROSSWORD

All answers can be found in this issue.
Solution on inside front cover.



ACROSS DOWN

- The return to work phase will be a transition to this (2 words) **4**
- Sometimes fish become _____ in dam structures during times of low water **8**
- An annual effort to rescue fish at Sherburne Dam **11**
- Schatz Point Fishing Pier is _____ to people living with disabilities **12**
- Construction on this pump station began in 2019 and was substantially complete in April 2021 **16**
- The generators at Canyon Ferry Power Plant will undergo this over the coming years **18**
- The Leadville Treatment Plant will remove this mineral from untreated water before it is released clean into the Arkansas River **20**
- The Belle Fourche Project was one of the first types of these projects developed by Reclamation **22**
- This dam in Wyoming was constructed in the 1950s **23**
- Executive Order 13991 required all federal employees to be _____ **24**
- One of the counties to be connected to the AVC trunk line **26**
- Acronym for a model on the North Fork Red River **27**
- The 2021 photo contest had 161 of these **28**

- 1** Community that receives water supplies from the Standing Rock Rural Water Supply System
- 2** North Platte River flows below this dam are usually decreased during September and maintained at a lower flowrate through the winter (2 words)
- 3** Type of particle formed when recycled, settled sludge metals stick together
- 5** The 1st place winner in the photo contest features one of these
- 6** This point will boast a new boat ramp in Summer 2022
- 7** Reclamation's 53 powerplants on average produce 40 billion _____ hours annually
- 9** Mt. Elbert is this type of water delivery feature
- 10** Type of study that investigates water and related land resource issues and opportunities in the Kansas River Basin
- 11** Number of Reclamation-operated reservoirs on the North Platte River
- 13** Reclamation is the second largest producer of this in the USA
- 14** Type of contaminated radionuclide found in water supplies near Pueblo, Colorado
- 15** NKAO Irrigation District selected for a recent WaterSMART award
- 17** Drought increases the risk of these
- 19** State partner on the AVC (Acronym)
- 21** The construction crew from this area office helped DKAO build a new boat ramp
- 25** Small reductions in winter flowrates improve habitat conditions for this animal
- 26** Belle Fourche Dam is known by this name to locals

Back in Reclamation history

Kortes Dam, Wyoming, under construction, circa 1950.

