



PlainsTalk

Water & Power for the American Public

SUMMER 2026

Holding the line against invasive & nuisance species

- NKAO Water Jamboree • Regional photo contest now open •
- GIS: Useful data at your fingertips • Norman Project improvements •

News from Reclamation's MB&ART Region





Plains Talk
Summer 2026

Plains Talk is a digitally distributed employee publication devoted to the interests of Reclamation's Missouri Basin & Arkansas-Rio Grande-Texas Gulf Region.

Plains Talk encourages employee submissions, and assists with developing stories or photo essays. Please contact the editor with your questions or ideas at dasher@usbr.gov, (406) 247-7608.

Publisher

Tyler Johnson

Editor

Darryl Asher

Plains Talk magazine staff

Sterling Rech
Nick Nohalty
Austin Lewis
Anna Perea
Michelle Boehm



Department of the Interior Mission Statement

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.



Reclamation Mission Statement

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Back Cover: Looking Back at Fresno Dam



Cover: Josh McMartin, Hydraulic Engineer, performs water testing procedures.
Photo by Annie Quattlebaum, TSC

This page: Choke Canyon Dam spillway, Texas.
Photo by Goran Radinovic, OTAO

2026 PHOTO CONTEST



Submit your best qualifying images through Friday, October 2

The annual Missouri Basin photo contest is open for entries! Each year, employees enter an outstanding collection of imagery showcasing our region's natural beauty, team members, wildlife, infrastructure, and worksites. All Missouri Basin employees are encouraged to submit their best qualifying photos through Friday, October 2 for a chance to be featured in Reclamation brochures, posters, publications, social media, and other print and digital products.

TO ENTER: Just email your photo to: dasher@usbr.gov.

IMAGES: Please provide the highest resolution image you have. Basic editing is fine, as long as it does not affect the authenticity of the photo.

REQUIRED INFO: Please name your photo file with your name and a short description. (Example: "Darryl Asher - Yellowtail Dam from the visitor center.jpg.") You may include additional information in your entry email.

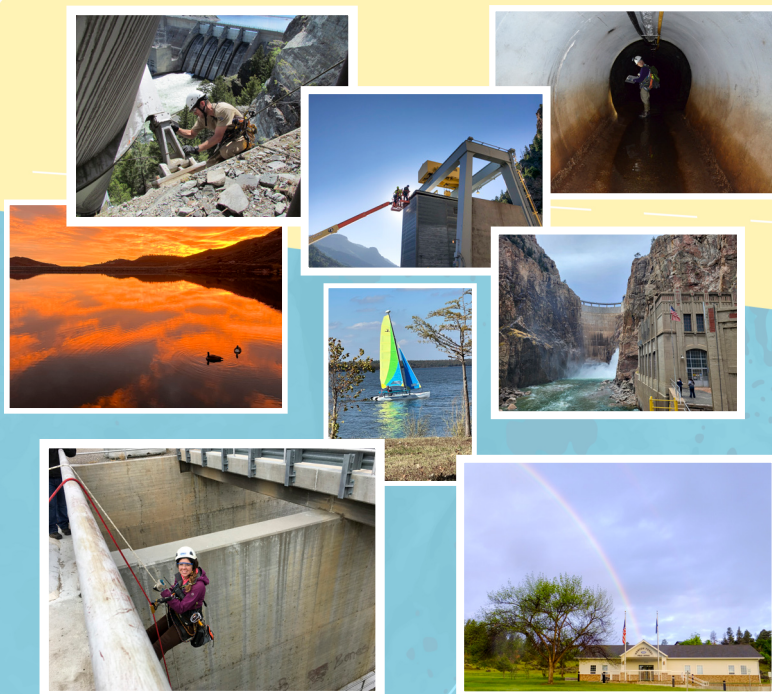
SUBJECT: All photos must be taken at MB&ART lands or facilities.

NUMBER OF ENTRIES: There is no limit to the number of photos you can enter. However, Public Affairs staff may limit the number of images put up for voting.

DEADLINE: Submit your photos by Friday, October 2.

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

As always, we look forward to seeing the wonderful photos from your unique perspective.



THAT'S A WRAP!

St. Mary and Halls Coulee siphon reconstruction complete

By Nick Nohalty



The reconstruction effort for the St. Mary and Halls Coulee siphons is now complete, closing an important chapter following the June 2024 St. Mary Siphon response.

The work at Halls Coulee was especially important because the two siphons are connected pieces of the same larger system. Together, they help move water across rugged terrain and into the Milk River basin.

This closeout is a chance to recognize the coordination, long hours and problem-solving that went into getting here. The incident was a reminder of the challenges that come with aging infrastructure, but also a strong example of effective response, teamwork and technical expertise.

With construction complete, the focus now shifts back to long-term operation, maintenance and reliability for the water users who rely on the Milk River Project.





GIS technology maps and analyzes data, helping you see where Reclamation's assets, infrastructure, and resources are, and how they impact the communities we serve.



GIS

Geographic Information System

Useful data A CLICK AWAY

A Geographic Information System is a tool that helps you see information on a map so you can understand where things are and how they relate to each other. Instead of looking at long lists, spreadsheets, or written descriptions, GIS lets users view their information in a way that's visual, interactive, and intuitive, using charts, graphs, and map location icons.

Reclamation's **Enterprise Asset Registry** web interface uses GIS information to display dashboards for assets across Reclamation, including dams, buildings, powerplants, bridges, and other categories that you may not have even thought of. Each dashboard shows the location and vital information of those entities, and can be filtered by region, purpose, state, area office, and a variety of other parameters.

The **Tessel** web application's map-based interface allows you to view GIS data through customizable layer-based maps. You can view the "big picture" or zoom in to see data about individual assets. Tessel can also output a high resolution PDF of your custom map.

The dedicated work of the GIS team makes it possible for staff to easily find information about Reclamation's many facilities, structures, and programs without digging through documents or wondering who to call.

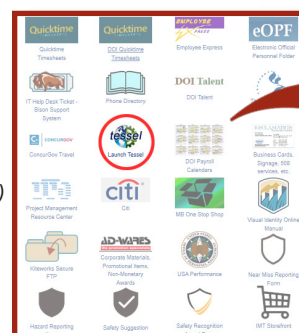
You don't need to be in a technical position to find this tool useful. GIS can help you do your job faster and more accurately by making information easy to find, understand, and share. The key benefit is turning complex data into simple map-based answers. Many common tasks can be supported, enhanced, and made more efficient by using GIS. Using these tools, you can:

- Locate equipment, assets, or facilities and see which region or area office they belong to
- View ownership and administrative information such as whether Reclamation or a partner manages a facility
- Support public and internal requests for information
- Create and export maps for reports or presentations, adding highlights, labels, and location pins

It also reduces confusion and improves accuracy. Since GIS draws from authoritative data sources, users are less likely to get outdated or inconsistent information.

For questions about the GIS project, contact regional GIS Specialist Daniel Heim at dheim@usbr.gov.

You can access the GIS apps through the Launch Tessel icon on the intranet main page <https://intra.gp.usbr.gov> (Make sure you are on VPN if working remotely.)



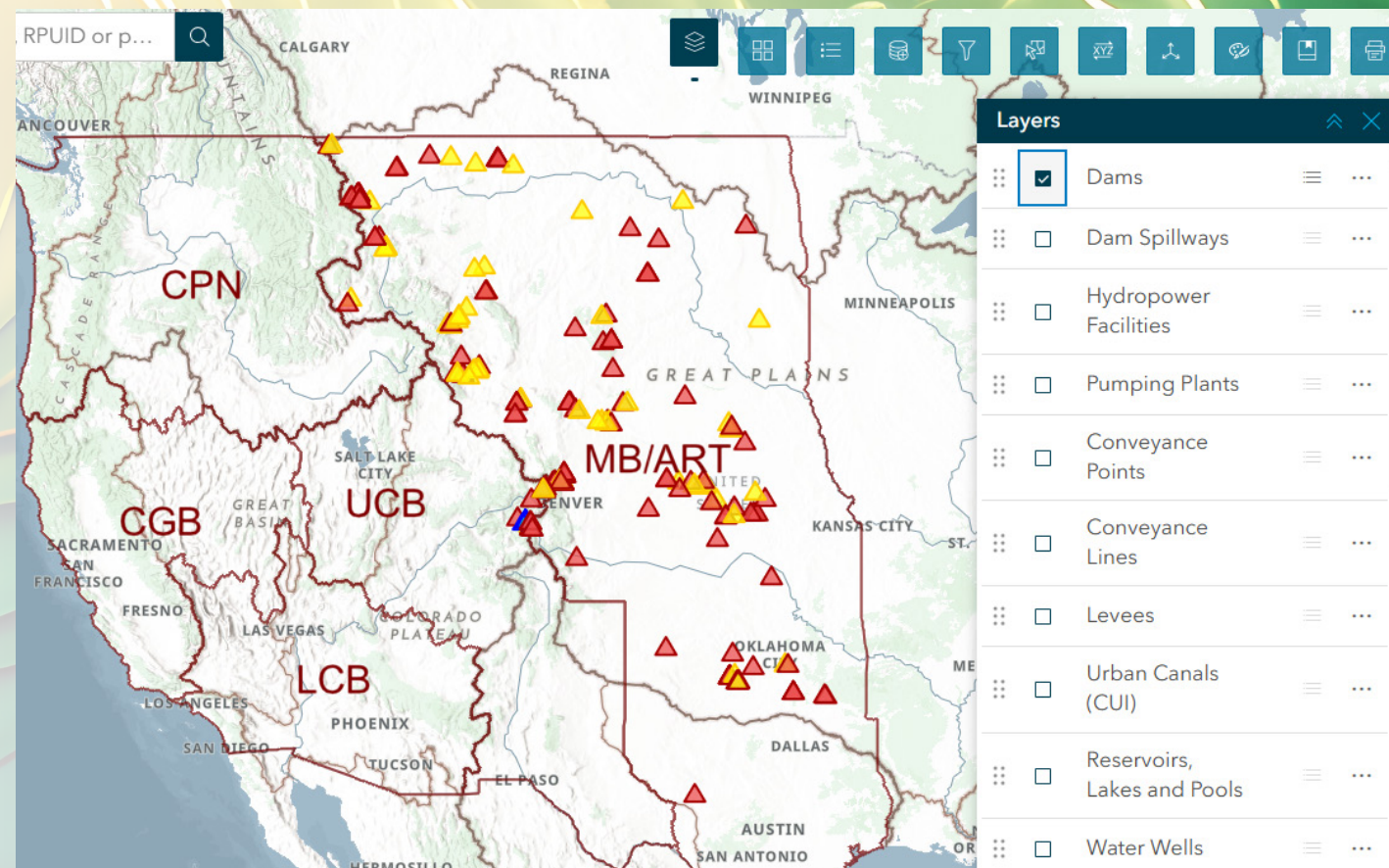
From the resulting page, you can launch Tessel, or click the eGO link to see a menu of services, including the Enterprise Asset Registry Project dashboards.



You can also access the GIS Community Sharepoint, training, and how-to guides.

Start Tessel - Enterprise

- Tessel is an application framework that supports suite of business-driven apps and focused tools. For example **Modeled Inundation Analysis** or **ShakeMap**
- The new **Tessel** framework and many other web mapping applications can be found and launched from **Enterprise Geospatial Operations (eGO)**. To discover latest Tessel apps and tools, search "tessel".



The Asset Registry dashboards allow filtering of assets by region, state, and a variety of other parameters.

Through the interactive Tessel interface, users can turn layers on and off to create a custom view, which can be exported as a high resolution PDF.



RECLAMATION HISTORY

ON TOUR

Reclamation joins America's 250th birthday celebration with a traveling exhibit

As America marks its 250th birthday, Reclamation is getting in on the celebration, and the MB&ART Public Affairs group has put together something worth seeing.

The team has created a multi-part exhibit that showcases Reclamation's history as part of the broader 250th birthday festivities.

The centerpiece is a striking 8-by-8-foot stretched fabric graphic featuring a timeline of Reclamation's history. It

highlights the landmark projects that helped transform the American West, including Hoover, Grand Coulee, Glen

Canyon, and Shasta Dams. It's a reminder that the story of the West is, in no small part, the story of Reclamation.

Alongside the main graphic, six retractable banners, each 33 by 90 inches, complete the exhibit. Each banner is dedicated to a different Foundational Project, telling the story of the pioneering work that established Reclamation's footprint across the western states. Together, the exhibit connects more than 120 years of water and power infrastructure to the larger American story being celebrated this year.

Coming to a region near you

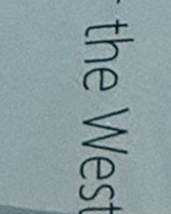
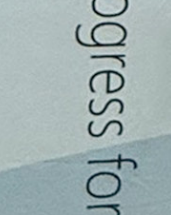
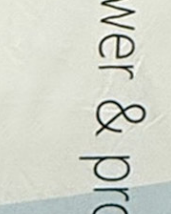
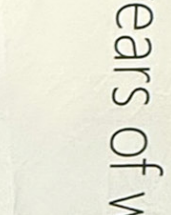
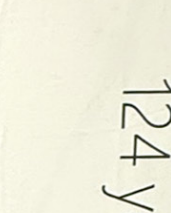
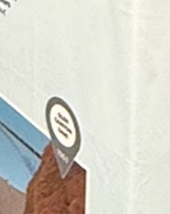
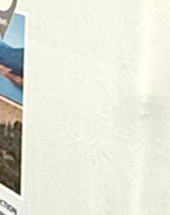
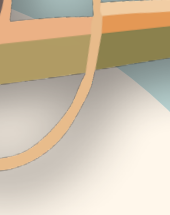
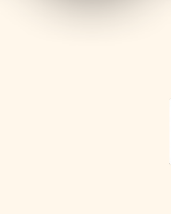
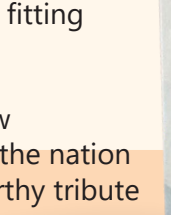
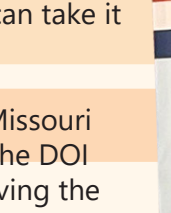
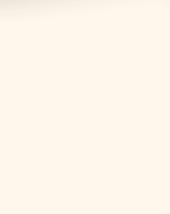
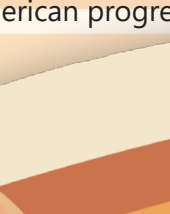
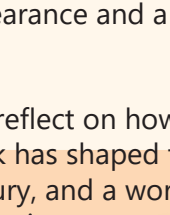
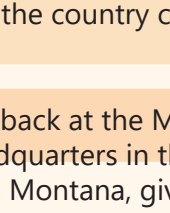
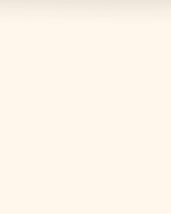
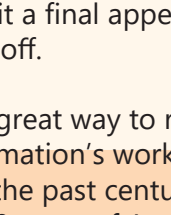
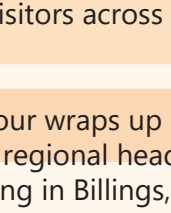
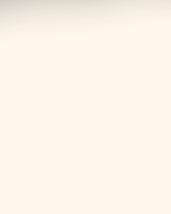
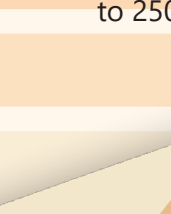
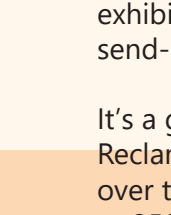
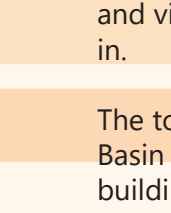
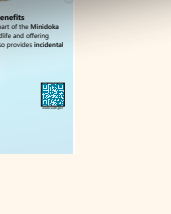
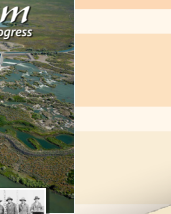
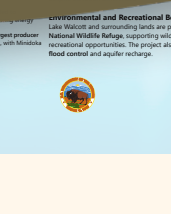
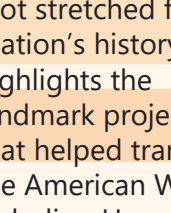
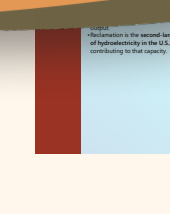
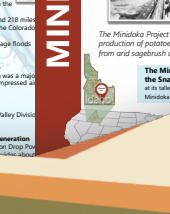
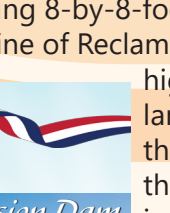
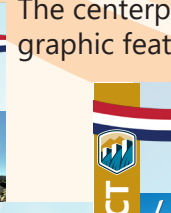
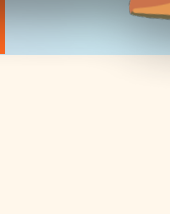
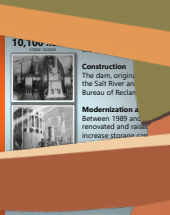
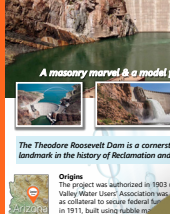
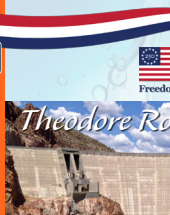
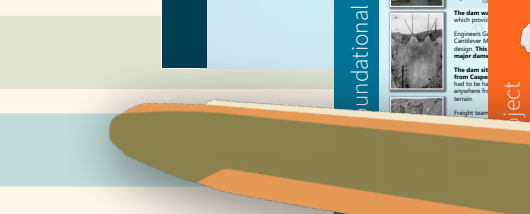
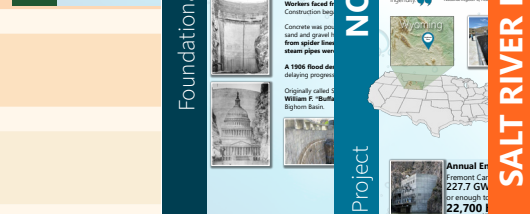
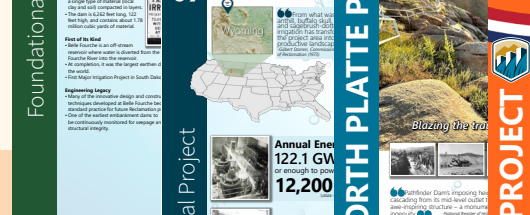
The exhibit is currently on display at the Department of the Interior building in Washington, D.C. From there, it will hit the road, traveling to each of Reclamation's regional offices so staff and visitors across the country can take it in.

The tour wraps up back at the Missouri Basin regional headquarters in the DOI building in Billings, Montana, giving the exhibit a final appearance and a fitting send-off.

It's a great way to reflect on how Reclamation's work has shaped the nation over the past century, and a worthy tribute to 250 years of American progress.

TOUR SCHEDULE

Washington D.C.- June and July
Denver / TSC - August
Lower Colorado Basin - September
Upper Colorado Basin - October
California Great Basin- November
Columbia Pacific Northwest Region - December
Back to Missouri Basin Region - January



124 years of water, power & progress for the West



Holding the line against invasive species

By Frank Sanchez

Invasive aquatic and terrestrial species present ongoing operational and ecological challenges for Reclamation facilities throughout the Missouri Basin Region. Dams, reservoirs, canals, and embankments rely on unobstructed flows, stable shorelines, and healthy native ecosystems to function effectively. Invasive organisms can compromise each of these conditions.

Aquatic invaders such as shell-forming mollusks, aggressive fish, and dense aquatic vegetation can clog intake structures, reduce pumping efficiency, and restrict canal capacity. These infestations increase wear on mechanical equipment and raise maintenance costs. Some species also disrupt fisheries and displace native wildlife, complicating habitat restoration and recovery efforts.

On land, invasive trees, shrubs, weeds, and grasses establish rapidly on disturbed soils around project facilities. These plants can block access roads, interfere with inspections, destabilize embankments, and elevate wildfire risk. Dense growth also crowds out native vegetation that helps prevent erosion and supports wildlife.

"I recognize that we've been blessed with land and water resources that have been enjoyed for generations and I want them to be enjoyed for many more to come. But we can't take them for granted, not today. The impacts of invasives aren't instant but they're long lasting, and I want my children and grandchildren to not only have what we do today, but the knowledge to restore what's already been overtaken," said Jason Gibbons, supervisor of the Environmental and Cultural Resources Group for the Bureau of Reclamation's Missouri Basin. "Those of us in Reclamation who manage land and water resources for the American public, we understand their value and are passionate about ensuring they remain healthy and available."

Protecting water infrastructure, habitat, and reliability in the Missouri Basin

The Platte Valley Weed Management Area staff applying aquatic-safe herbicide to control phragmites along the Platte River, NE.



Full personal protective equipment is used while spraying invasive and noxious weeds for land management in South Dakota.



Reclamation partnered with the Arapaho and Roosevelt National Forest and the Rocky Mountain Conservancy's Conservation Corps to install buck-and-rail fencing over uneven terrain in order to help secure shoreline from uninspected watercraft entering the water. Photo: USDA-FS



the firewood we camp with and in the containerized shipments our economy relies on," said Gibbons.

Managing invasive species protects more than habitat. It safeguards water delivery reliability, reduces operational risk, and supports Reclamation's mission to provide dependable water supplies while sustaining healthy ecosystems across the Missouri Basin.

To address these threats, Reclamation employs an integrated management approach that includes early detection, monitoring, mechanical removal, targeted herbicide treatments, and revegetation with native species. Preventative practices are emphasized because small infestations are significantly easier and less expensive to control than widespread outbreaks.

Public cooperation plays a critical role in prevention. Cleaning and drying boats and equipment, avoiding transport of plants or standing water, and reporting suspicious sightings help limit the spread of invasive species between water bodies and project sites.

"We enjoyed the lakes, meadows and mountains as children and value them still today for their scenery, recreation and livelihoods. But today we all have a new responsibility, one we didn't ask for but are obligated to take on. We must keep invasive species from spreading and eradicate them where we can. Invasives can be carried on our shoes or the undersides of our vehicles, in the water in our recreational or work equipment, in



Dakotas Area Office staff re-seeds native grasses on lands impacted by heavy noxious weed infestations.

MB Resource Services group supports PlayCleanGo awareness week

The Missouri Basin Region Resource Services group supported PlayCleanGo Awareness week June 6-13, an effort to spotlight the importance of avoiding the spread of invasive species.

PlayCleanGo® Awareness Week is a continent wide outreach campaign coordinated by the North American Invasive Species Management Association in collaboration with partners across North America, including Invasives Canada and CONABIO in Mexico.



The campaign encourages people to take simple actions that help prevent invasive species from spreading between trails, parks, waterways, forests, and other natural areas.

Whether you're hiking, biking, paddling, camping, horseback riding, climbing, fishing, or exploring your local parks, you can help protect ecosystems by cleaning your gear and being mindful of how invasive species can spread through outdoor recreation.

The PlayCleanGo.org website offers valuable insight and action items to mitigate the spread of invasive species on land and in water.



A boat anchor infested with invasive mussels.



ECAO and partners make waves to prevent AQUATIC NUISANCE SPECIES

The Eastern Colorado Area Office kicked off the 2026 recreation season prepared for the challenge of protecting Reclamation's infrastructure from aquatic nuisance species while supporting much-loved recreational access.

At the most fundamental level, Reclamation's Aquatic Invasive Species spend plan under the Fish & Wildlife Coordination Act provides funds for Colorado Parks and Wildlife staffing at Watercraft Inspection and Decontamination stations across the state. In addition, grants to ECAO and their recreation partners have helped strengthen the defenses against pests such as zebra, quagga and golden mussels.

Valuable partnerships

In 2026, ECAO recreation partner, Larimer County Department of Natural Resources, received \$230,000 from the AIS spend plan. With Larimer County providing matching funds, the LCDNR can support core program operations, replace decontamination equipment, upgrade safety gear and replenish inspection materials. The funding will also support installation of gear cleaning stations for anglers and non-motorized watercraft.

For the last 15 years, Larimer County's ANS program has prevented the introduction and spread of invasive zebra and quagga mussels at Horsetooth and Carter Lake reservoirs through rigorous watercraft inspection and decontamination procedures. Last year, Larimer County inspected 56,777 vessels, decontaminated 1,242 vessels and intercepted seven vessels with attached mussels. In early May 2026, they successfully intercepted the first mussel-fouled boat of the season before it could launch into Horsetooth Reservoir.

"Our Aquatic Nuisance Species program serves as the essential front line defense for Larimer County's waters. Last year's interception of seven mussel-infested vessels proves that our rigorous inspection and decontamination protocols are working exactly as intended. By stopping these threats before they enter Horsetooth and Carter Lake reservoirs, we are successfully preserving the ecological health and recreational future of our community's most vital resources," said Daylan Figgs, LCDNR Director.

By Anna Perea, ECAO



Invasive species can rapidly disrupt ecosystems, damage infrastructure, and create costly long-term management burdens. Taking early action helps protect native habitats, maintain ecological balance, and prevent escalating expenses for agencies responsible for managing natural and water resources.

Zebra mussel



The South Bay wash pad station at Horsetooth Reservoir was completed this year. (Photo by Melissa Panella, ECAO.)



An example of a Smith-Root eDNA autosampler installed in the field (from www.smith-root.com).

Monitoring by many

Reclamation knows that they can celebrate the successes of partner WID stations because the frequent monitoring and sampling that occur at ECAO reservoirs show no evidence of infestation. Staff from the Technical Service Center in Lakewood, CO sample ECAO reservoirs monthly from May through September. Additionally, Colorado Parks and Wildlife and Northern Water provide supplemental sampling at various intervals and locations.

To increase the frequency of sampling, ECAO received a 2025 award through Reclamation's Mission Assurance & Protection Organization to purchase two eDNA autosamplers to be deployed strategically in Colorado-Big Thompson and Fryingpan-Arkansas Project waters.

The autosamplers can be deployed remotely and programmed to take up to eight samples at specified times. After sample collection, researchers at the Technical Service Center provide analytical services. While not confirmatory, data from these samplers can provide an early signal to decision-makers.

"By deploying eDNA auto-samplers, we're strengthening an early-warning network that complements ongoing monitoring by our recreation partners. Together, these coordinated checks can reveal the first sign of invasive mussels and allow for rapid lab confirmation through Reclamation's EcoLab. Our objective is to protect Reclamation's infrastructure, water deliveries, and the environment," said Melissa Panella, Natural Resource Specialist at ECAO.

Upcoming projects

Farther upstream, Estes Valley Recreation and Park District received an award from the Aquatic Invasive Species (AIS) spend plan under the Fish & Wildlife Coordination Act authority in 2025 to build a watercraft inspection and decontamination station at Lake Estes. Construction will be completed in late 2026. West of the Continental Divide, ECAO partnered



The Satanka Bay inspection shelter at the north end of Horsetooth Reservoir opened in 2025. (Photo by Melissa Panella, ECAO.)

Decontamination station construction at Lake Estes. (Photo courtesy of Keith Williams, Estes Valley Recreation and Park District.)



ECAO nuisance species, continued

with the Arapaho & Roosevelt National Forest to improve aquatic nuisance prevention and inspection operations at boat ramps and vulnerable areas within the Arapaho National Recreation Area. The ANRA contains Granby, Shadow Mountain, and Willow Creek reservoirs—all part of ECAO infrastructure. AIS funds from 2024 will allow water supplies to be added at two inspection sites, enable replacement and addition of gates and rock barriers for enhanced security, and construct bulletin boards to post regulations and visitor information. The projects will improve inspection station efficiency, prevent illegal boat launching, and provide information to visitors about the program.

Additionally, in the White River National Forest, 2024 AIS funds will enable repairs to a Ruedi Reservoir boat ramp. The repaired ramp will prevent illegal boat launches and is scheduled to begin construction in 2026.

Be prepared

Reclamation staff incorporate emergency preparedness into their daily routines, including when the threats—juvenile mussels—are too small to see without a microscope.

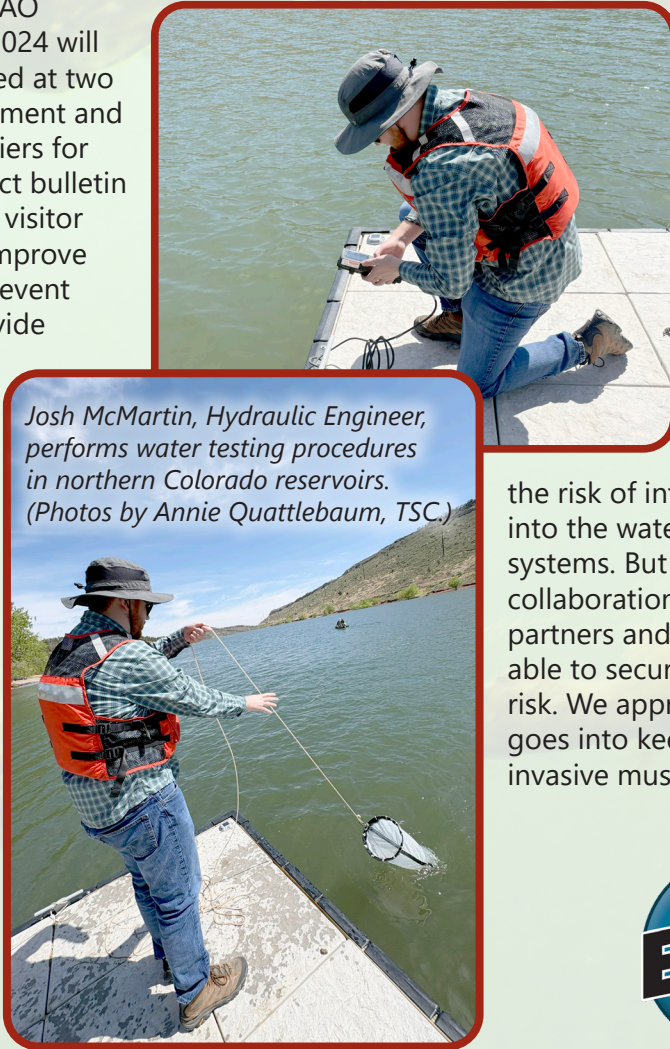
In April, Reclamation staff from the Eastern Colorado Area Office and the Technical Service Center attended an Aquatic Nuisance Species Rapid Response Exercise in Grand County to strategize a plan of action in case zebra mussels ever gain a foothold in Colorado-Big Thompson Project infrastructure.

Led by facilitator, Leah Elwell, of Conservation Collaborators, and sponsored by Colorado Parks and Wildlife, the session led participants through a fictitious scenario in which zebra mussels were discovered in Lake Granby. Participants from Reclamation, Northern Water, the U.S. Forest Service, Grand County and Colorado Parks

and Wildlife then devised quick-acting response plans to protect water and power infrastructure, habitat and wildlife, and recreation and tourism.

Jeff Rieker, ECAO Area Manager, said, “I’m excited that we’re able to protect these resources for the public we serve, both now and in the future. Our infrastructure provides the backbone for achieving our key missions of water delivery and power generation. Offering recreation opportunities in and around our reservoirs provides an incredible public service but with the risk of introducing invasive species into the water and power delivery systems. But thanks to our strong collaborations with our recreation partners and the funding we’ve been able to secure, we can minimize this risk. We appreciate the hard work that goes into keeping our systems free from invasive mussels.”

Josh McMartin, Hydraulic Engineer, performs water testing procedures in northern Colorado reservoirs. (Photos by Annie Quattlebaum, TSC.)



Crossword Solution

Norman Project

recreation improvements underway

By Frank Sanchez



Visitors to several of Oklahoma’s most popular lake destinations will soon find it easier to enjoy the outdoors, thanks to a series of accessibility improvements underway at recreation areas managed by the Bureau of Reclamation.

The project will upgrade recreation facilities at 13 locations across western Oklahoma, including areas at Quartz Mountain State Park, Great Plains State Park, Fort Cobb State Park and Foss State Park. The improvements represent about \$1.8 million in infrastructure upgrades designed to enhance access to Reclamation reservoirs and recreation sites.

Work will include upgrades to fishing docks, courtesy docks, campgrounds, boat ramps and day-use areas. Projects will also add accessible sidewalks, parking areas, picnic tables and other recreational features designed to meet accessibility standards.

The new improvements are designed to make those recreation experiences more accessible for visitors of all abilities. By improving paths to the shoreline and upgrading recreation infrastructure, the project will help ensure more visitors can safely access lakes, beaches and campgrounds.

Construction is expected to continue through fall 2026.



NKAO staff engage students at the 33rd annual WATER JAMBOREE

By Catherine Griffin, NKAO

Reclamation employees from the Nebraska-Kansas Area Office once again played an active role in the annual Water Jamboree at Harlan County Reservoir. NKAO staff David Brewster, Catherine Griffin, and Aric Riggins presented a "Hydropower" session with a hands on hydroelectric dam model, and Cherri Lashley and Cameron Woltemath led school tours through various sessions.

Reclamation's hydropower dam model is a popular exhibit that helps students understand how flowing water is transformed into renewable energy. Visual elements such as props,



educational banners, and a cartoon video featuring Otto the Otter, Reclamation's water safety mascot, completed the presentation. These

items, produced by the regional Public Affairs office, enhanced the learning experience, giving context to Reclamation's mission.

School tours rotated through 25-minute sessions of the hydropower demonstration, giving each group the opportunity to explore dams, reservoirs, and hydropower concepts. The students and teachers

asked engaging questions about subjects such as water measurements and waterfowl migration.

In 2026, numerous resource management agencies participated in the Water Jamboree's success: the Tri-Basin Natural Resources District; Lower Republican Natural Resources District; Central Valley Irrigation; Nebraska Game and Parks Commission; Kansas Division of Parks and Wildlife; NE and KS Extension Offices; U.S. Bureau of Reclamation; U.S. Army Corp of Engineers, Nebraska Department of Water, Environment, and Energy; and the Two Rivers Public Health Department.



Reclamation's continued involvement in the Water Jamboree highlights the agency's commitment to youth outreach and community engagement in understanding water resource management.



Reclamation staff Catherine Griffin and Aric Riggins demonstrate a working model of a hydroelectric dam to fifth grade students.



The Water Jamboree is a two-day educational event drawing nearly 480 fifth and sixth grade students from 18 schools. The event requires over 100 adult volunteers.



Reclamation's participation in the annual Water Jamboree offers students a closer look at water resources, responsible water management, and Reclamation's role in the community.



Reclamation staff Aric Riggins and David Brewster demonstrate a working model of a hydroelectric dam to fifth grade students.





Applying risk analysis to target canal infrastructure improvements:

The Truckee case study



Truckee Canal, a 31-mile canal in Nevada, made headlines in 2008 when it breached and flooded the nearby town of Fernley, Nevada. A rapid increase in storm water inflows overwhelmed a section of the 103-year-old earthen embankment. Though the resulting flood did not cause any fatalities, it raised concerns about long-term safety.

In the wake of the emergency, numerous studies were completed to evaluate the cause and the risk of future failures, while seeking to develop feasible alternatives to improve the safety of the Truckee Canal. That's where Reclamation's Technical Service Center (TSC) came in, partnering with the Lahontan Basin Area Office (LBAO) and Truckee-Carson Irrigation District (TCID) to conduct a Risk Analysis of the canal. The goal was to better understand the various potential failure modes of the canal, supplemented by a Risk-Over-Time analysis that would be updated at regular intervals.

Constructed between 1902 and 1905 as part of the Newlands Project, Truckee is one of Reclamation's oldest conveyance assets. As such, the breach of Truckee Canal illustrates the challenges of aging canals. Over time, all canal embankments can begin to succumb to factors that compromise their integrity. That's why canal owners and operators alike need methods to proactively identify and target issues so they can budget and plan for maintenance and improvements.

Fortunately, the TSC offers a range of expertise that can support canal managers. Of these, risk management is one of the best tools to help canal managers target the highest priorities for repair or improvement.

The story behind the Fernley flood

An early Reclamation success, Truckee Canal was completed in 1905 to irrigate parts of western Nevada too dry for large scale agriculture. As part of the Newlands Project, it was one of the first major irrigation efforts in the United States.

The town of Fernley started in 1904 as a shipping point for the Southern Pacific Railroad, slowly growing with local agriculture. The water it brought from the Truckee River helped make the Lahontan Valley an important agricultural hub. In 1926, the canal's operation and maintenance was transferred to the TCID. Today, the irrigation district continues to operate and maintain the canal, serving more than 50,000 acres of privately-owned agricultural lands.

Fernley maintained its small-town feel until about 1970, when I-80 sparked its growth as a transportation and logistics hub and attracted new residents who commuted to nearby Reno. This type of urbanization along a once-remote stretch of irrigation canal is a story repeated across the West.

When the canal breached on January 5, 2008, crews worked quickly to seal the breach and were

successful in halting uncontrolled releases within the same day. After a few weeks, the breach repair work was completed and by March that year, the canal was reopened for service. However, the incident highlighted the need to better understand what caused the breach to prevent something similar from occurring again on another stretch of the canal.

Once the immediate repairs had been addressed, Reclamation's California-Great Basin (CGB) Regional Geology team, LBAO, and TSC partnered to undertake a forensic investigation to understand the root causes. Investigators concluded the likely cause was an embankment failure brought poorly compacted, highly erodible soils, with integrity degraded by animal burrows and root systems.



concluded in 2018 and 2024. The team followed the risk analysis process to determine high risk areas based on failure likelihood, determining potential ways that the canal was at risk of failing under different surface water flow scenarios. The study examined flow scenarios at 150, 350 and 600 cfs, looking at risks of erosion in the embankment, and the foundation. It also looked at the risks of ice jams, overtopping from an incoming flood, and cracking due to seismic-loads. After ranking the consequences of failure on a scale of 0 to 4, with 4 being the highest consequence, the team created risk "heat maps." The heat maps helped visualize the likelihood of failure versus the consequences of failure along the length of the canal.

The heat map allowed Reclamation and

To understand the prevalence of these issues along the canal's 31 miles of embankments, engineers and scientists from the TSC, CGB Geology team, and LBAO conducted a detailed inspection of the entire length. They used a range of techniques to evaluate the geotechnical condition of the embankments, performed visual field inspections, and developed a calibrated hydraulic model of the canal's vegetated condition. The information derived from these tests, models, and inspections were consolidated into a GIS database to help inform the phased, risk-based design approach for canal improvements.

The power of risk analysis for planning maintenance

Many of Reclamation's canal systems were built between the 1900s and 1950s, so numerous canal systems throughout the West are more than a century old. Risks over time include increased urbanization, ongoing sediment deposition or erosion due to runoff, seepage, and root intrusion, and the continuous burrowing of animals into embankments.

The TSC finalized an updated risk analysis in 2015, with specific potential failure mode analysis updates

TCID to prioritize plans for phased repairs and improvements, maximizing risk reduction for high consequence areas first. This put them in a better position when an opportunity for construction funding came up, as they were ready to go with a flexible plan that allowed them to scale the repairs to the available funds. For the first phase of construction, approximately three miles of high-risk canal lining and embankment were rehabilitated, hardened to withstand stormwater inflows, and a critical check control structure was fully replaced.

Today, at 121-years-old, Truckee Canal is still delivering water to the Lahontan Valley, where forage crops such as alfalfa, corn, and pasture grasses support beef cattle and dairy herds. It stands as proof that a century-old system can keep serving the West when skill, science, and cooperation come together at the right moment.

To learn more about how to work with the TSC on canal condition assessment, risk analysis, or risk over time support, please contact Michelle Norris MLNorris@usbr.gov.



Arrowwood Fish Barrier building repairs

By Michelle Boehm, DKAO



On September 1, 2025, at about 10:35 a.m., the fish barrier building exploded.



The Arrowwood Fish Barrier is a Reclamation facility, managed by US Fish and Wildlife Service, on the James River on the very north end of Jamestown Reservoir, ND.

The purpose of the fish barrier is to prevent movement of undesirable fish species upstream from Jamestown Reservoir into the Arrowwood National Wildlife Refuge. A building houses electrical equipment and a back-up generator fueled by propane. The electrodes for the fish

barrier are within each of the three concrete box culverts in the river channel.

On September 1, 2025, at about 10:35 a.m., the fish barrier building exploded. The west half of the building was blown off its foundation and the west wall separated from the roof. The overhead door was blown southward about 20 yards. Both walk-in doors were blown outward and not operational. There was no apparent damage to the generator or anything in the generator room. A small roll of paper towels was burnt, and random plastic pieces were slightly melted. Several items in the control room were scattered on the floor. The fish barrier was still operating.

After the explosion, the fish barrier and electrical service were shut off and valuable fish barrier electrical equipment was salvaged.



An inspection noted about 500 gallons of propane had leaked through a faulty electric solenoid shutoff valve. The valve, located on the propane line, had failed to fully close. When a power failure occurred, the generator attempted to start and ignited the explosion.

Over the winter, with the help of Garrison Diversion, the building was repaired by removing the generator room section and resetting the remaining walls onto the foundation. Much of the building was able to be salvaged and repaired. New exterior siding and a door were installed this spring. A new externally housed generator was acquired, which will be installed outside the building. The goal is to have the barrier fully operational by this fall.



WYOMING recreation



Buffalo Bill Reservoir & State Park



Located just west of Cody, Wyoming, Buffalo Bill State Park is built around Buffalo Bill Reservoir, an 8-mile-long lake formed by Buffalo Bill Dam on the Shoshone River. The reservoir is a hub for boating, kayaking, jet skiing, and fishing, with anglers targeting rainbow and brown trout, kokanee salmon, and walleye. Two marinas provide boat rentals, fuel, and supplies. On shore, the park offers developed campgrounds, picnic areas, and beaches, along with hiking trails and good wildlife viewing opportunities. It's a well-rounded outdoor destination with something for just about every kind of visitor.

Printable/Fillable CROSSWORD

This puzzle is a fillable PDF. Optimal size for printing is 11"x17".

- across
1. These interfaces, available via the GIS web app, show location and vital info about Reclamation assets

7. These aquatic species can negatively affect local species and environment, as well as infrastructure

10. These kinds of mussels can be too small to be seen without a microscope

11. Invasive plants can do this to embankments

12. A USFW-managed fish barrier is located on this river

14. A fish barrier prevents undesirable species from moving into this national wildlife refuge

17. This web app features a map-based interface with customizable layers

20. Watercraft require rigorous inspection and _____ procedures

23. The S in GIS

24. The GIS system can output high resolution versions of these documents

25. The G in GIS

26. The Halls Coulee and St. Mary siphons are part of this project

30. This equipment attempted to start after a power failure, igniting an explosion

32. These kinds of species create unstable shorelines and obstruct water flows

33. TSC performed analysis on this canal

34. Reclamation's mascot answers to this name

35. The GIS system tracks these across Reclamation

36. This faulty piece of equipment contributed to the fish barrier building explosion

- down
2. This siphon system reconstruction is now complete

3. A boat ramp on this reservoir is scheduled for construction this year

4. TSC performs this type of analysis for canal infrastructure improvements

5. Outreach participants asked questions about migration of these

6. One type of aquatic invader

8. An OTAO project is adding accessible versions of these

9. These are being upgraded at OTAO

10. NKAO staff participate in this event every year

13. Photo contest entries must be taken at Reclamation lands or _____

15. The I in GIS

16. Infestations increase wear on mechanical _____

18. Fresno Dam is located near this Montana town

19. Invasive species disrupt these

21. Reclamation offers these opportunities in and around our reservoirs

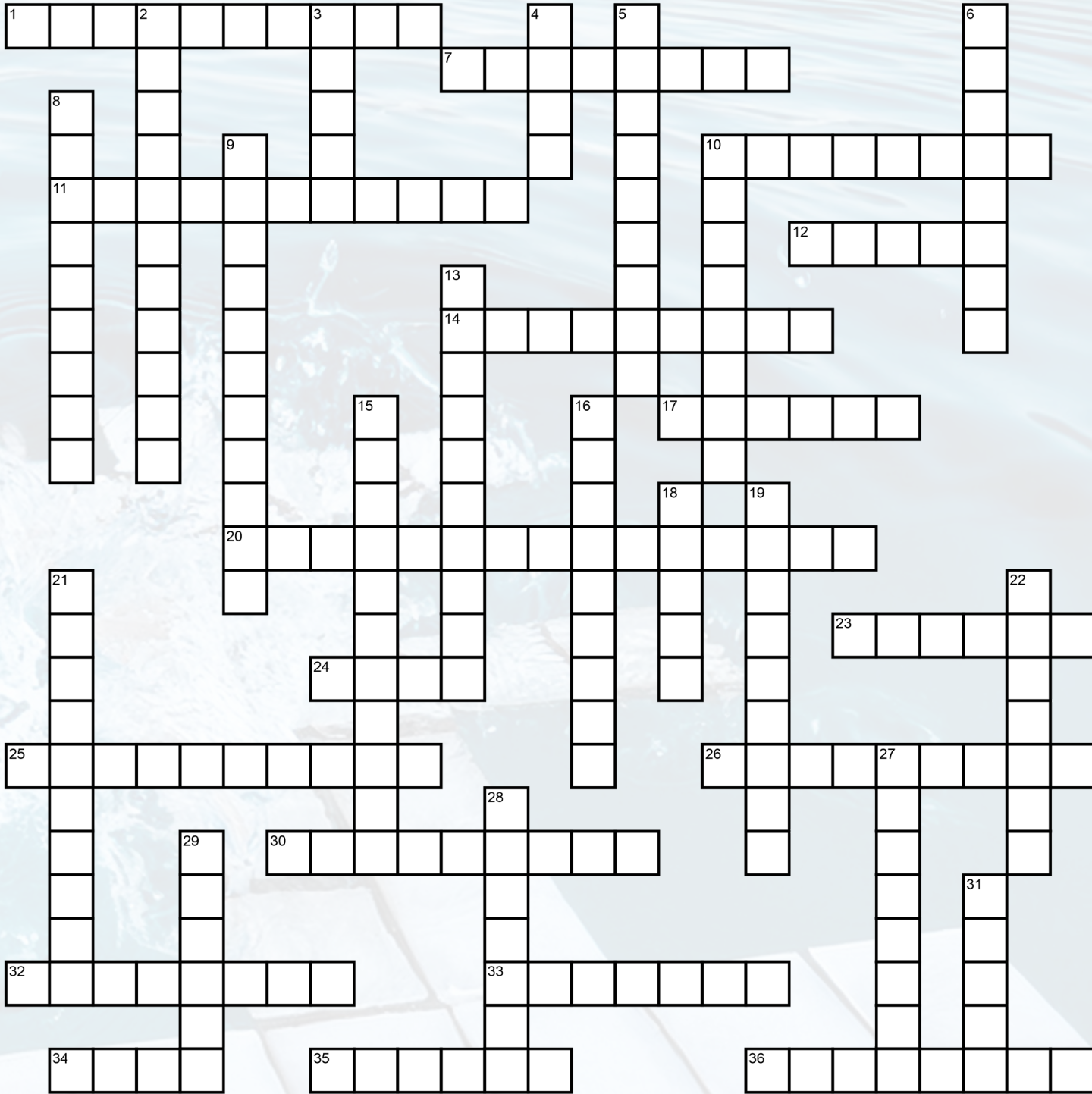
22. Last year 1,242 of these were decontaminated in Larimer County, Colorado

27. MB's _____ Services Group supported PlayCleanGo awareness week

28. Invasive species complicate restoration and recovery efforts of this

29. This Montana dam began construction in 1937

31. This contest welcomes entries from staff across the region



Answers can be found within this issue.
Crossword solution is on page 12.



FRESNO DAM



Fresno Dam under construction, 1937.



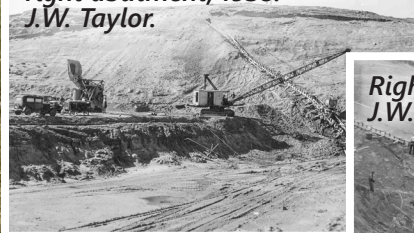
Semi-circular tunnel looking upstream, 1937.



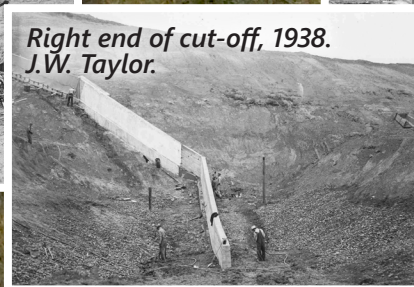
Jetting well points for right wing wall of spillway, 1937.



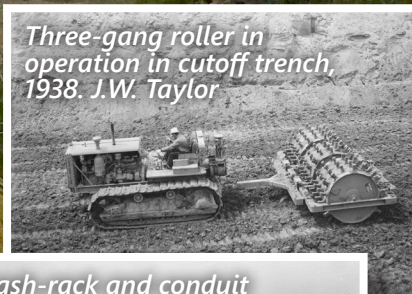
Pouring concrete cutoff of right abutment, 1938. J.W. Taylor.



Right end of cut-off, 1938. J.W. Taylor.



Three-gang roller in operation in cutoff trench, 1938. J.W. Taylor



Trash-rack and conduit looking upstream, 1938. J.W. Taylor.

