2024 Annual Report

COLORADO
Division of Water Resources
Department of Natural Resources



Sign at Colorado River Headwaters in Rocky Mountain National Park, September 2024, photo by Jason Ullmann

Forward from the State Engineer

I am honored and privileged to have been selected as the 23rd State Engineer on March 20, 2024. Stepping into this position is humbling as I am aware of the many respected individuals that as State Engineer have led the Division of Water Resources (DWR) in accomplishing its critical role of providing certainty for water users and protecting public safety in our semi-arid climate. More specifically, I need to express thanks to my predecessor, Kevin Rein, for his many years of service to the State of Colorado. I also appreciate Dick Wolfe and Hal Simpson, who are pictured below along with myself and Kevin Rein, for their guidance and assistance as I start this new role. It is invaluable to have access to advice from the individuals who have served as State Engineer since 1992!

I am excited to also report that the Assistant State Engineer position I left by was filled by John Hunyadi, who was promoted from the Chief of Dam Safety role. He joined an amazing leadership team that supported me in 2024 that includes Tracy Kosloff, Deputy Director, Sarah Brucker, Deputy State Engineer and Brianna Franco, Finance and Administrative Services Director. In addition, I need to thank the seven Division Engineers that continued to provide great and steady leadership in each of their water divisions.

As I begin my tenure as State Engineer, I look forward to leading the DWR but am cognizant of the significant headwinds we face as water systems are stressed by increasing demand while the west is in the throes of the worst extended drought in a millennia exacerbated by rising temperatures that have extended growing seasons and increased consumptive uses. This additional stress on water supply has driven users to develop increasingly complex plans to use water and find new supplies, which eventually become the responsibility of DWR staff across the state to administer and enforce. To accomplish our mission with the resources available in the current budget climate we will likely need to shift priorities and accelerate the creation of innovative tools that help our staff do their jobs more efficiently.



State Engineer Lunch (left to right)
Back: Dick Wolfe & Kevin Rein,
Front: Jason Ullmann & Hal Simpson

Jason Ullmann, P.E.
State Engineer/Director

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2024 in Review

I need to start by thanking DWR's dedicated staff around Colorado for continuing to perform the difficult work that allows DWR to accomplish its important mission in 2024. They are the boots on the ground ensuring that water users receive water they are entitled to under the law and that public safety is protected through our dam safety and well inspection programs. As you will read below and in separate division reports, it has been a busy year with many accomplishments across the state.

Water supply conditions in 2024 did not replicate the banner snowpack and runoff from 2023 but reached 108 percent of average statewide in early April. Runoff volumes were also slightly greater than average while temperatures were between 2-4 degrees above average across Colorado. Greater than average carryover resulted from the previous year's runoff so water users with storage generally started off the season in good shape. The impact of two above average years was reflected in the U.S. Drought Monitor where Colorado began the year on January 1st with 64 percent of the state shown in on of the drought categories (D0 to D4) but ended the year with only 25 percent of the state shown as experiencing some level of drought.

Several interstate issues have consumed a significant amount of time in 2024. First, on March 20, 2024, the U.S. Supreme Court heard oral arguments in the Texas v. New Mexico and Colorado (141, Original) case on the Rio Grande. The states argued that the Court should enter the Consent Decree that they negotiated and that Special Master Melloy recommended, while the U.S. argued that entry should be denied because it lacked their consent. On June 21, 2024, the U.S. Supreme Court issued a 5-4 decision denying entry of the Consent Decree. This resulted in appointment of new Special Master D. Brooks Smith who held a meeting in Denver on October 23rd where he directed the parties to return to mediation. Mediation resumed at a three-day meeting beginning on December 10th, in Washington DC and will continue in February of 2025 at a meeting in Pittsburgh, PA.

The Republican River Water Conservation District continued to contract with producers to use federal funds and SB22-028 funds provided by the General Assembly to retire lands from irrigation in furtherance of reaching the goal of retiring 10,000 acres by the end of 2024. Through their efforts and the efforts of DWR Staff we confirmed retirement of over 16,000 acres by the end of 2024. In recognition of reaching this interim milestone set by Republican River Compact Administration (RRCA) action in 2016, the RRCA passed a resolution on December 16th, acknowledging that Colorado has met the 10,000 acre interim retirement goal.

On other interstate fronts a group of DWR and Attorney General's Office staff continued to meet with Nebraska regarding their plans for pursuing construction of the Perkins County Canal per Article VI of the South Platte River Compact. I, and other DWR staff continued to support Colorado's Post-2026 negotiating team on the Colorado River, led by Becky Mitchell as Colorado's Commissioner to the Upper Colorado River Commission (UCRC). Any new guidelines for operating Lakes Powell and Mead after the current 2007 guidelines expire will have a big impact on work that DWR may have to perform in the future, whether that is required compliance actions directed by the UCRC or administration of voluntary conservation programs that have been discussed as part of the negotiations. Staff in Divisions 4 to 7 spent considerable effort in 2024 reviewing applications to the UCRC for participation in the second round of System Conservation Pilot Program (SCPP). Review focused on identifying potential injury to other water rights and administration concerns that needed to be addressed through agreements signed for the SCPP.

After a period of transition following my appointment as State Engineer, I decided to proceed with the promulgation of measurement rules for Divisions 4 through 7, which help provide more consistent guidelines for required measuring and headgates. Specific progress included holding a final stakeholder meeting on October 17th in Durango for the Division 7 Rules and filing the Rules with the Division 7 Water Court in November.

The Colorado Supreme Court in 2024 continued its tradition of making consequential decisions that provide additional clarity on how to apply the statutes related to water. In a November 4th decision in Parker Water and Sanitation District v. Rein the Court affirmed that the State Engineer has the authority to impose a total volumetric limit on nontributary groundwater withdrawals from Denver Basin aquifers. This limit prevents injury to the rights of surrounding properties whose underlying water could be effectively pumped by neighboring wells without a total volumetric limit.

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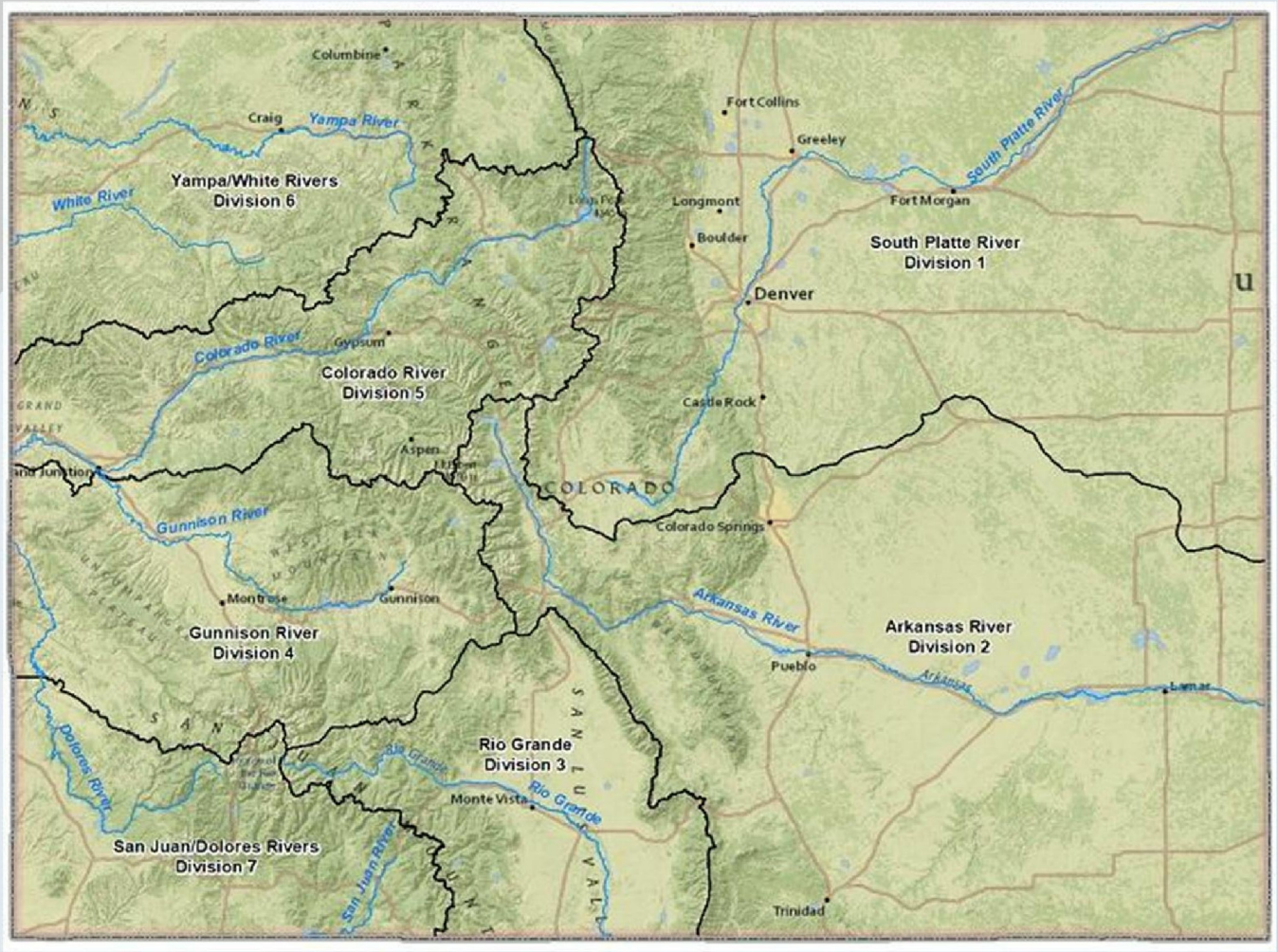
Department of Natural Resources

Mission:

The Division of Water Resources will administer the waters of the State to maximize lawful beneficial use, ensure that dams and water wells are properly constructed and safe, and provide information about water resources to the public.

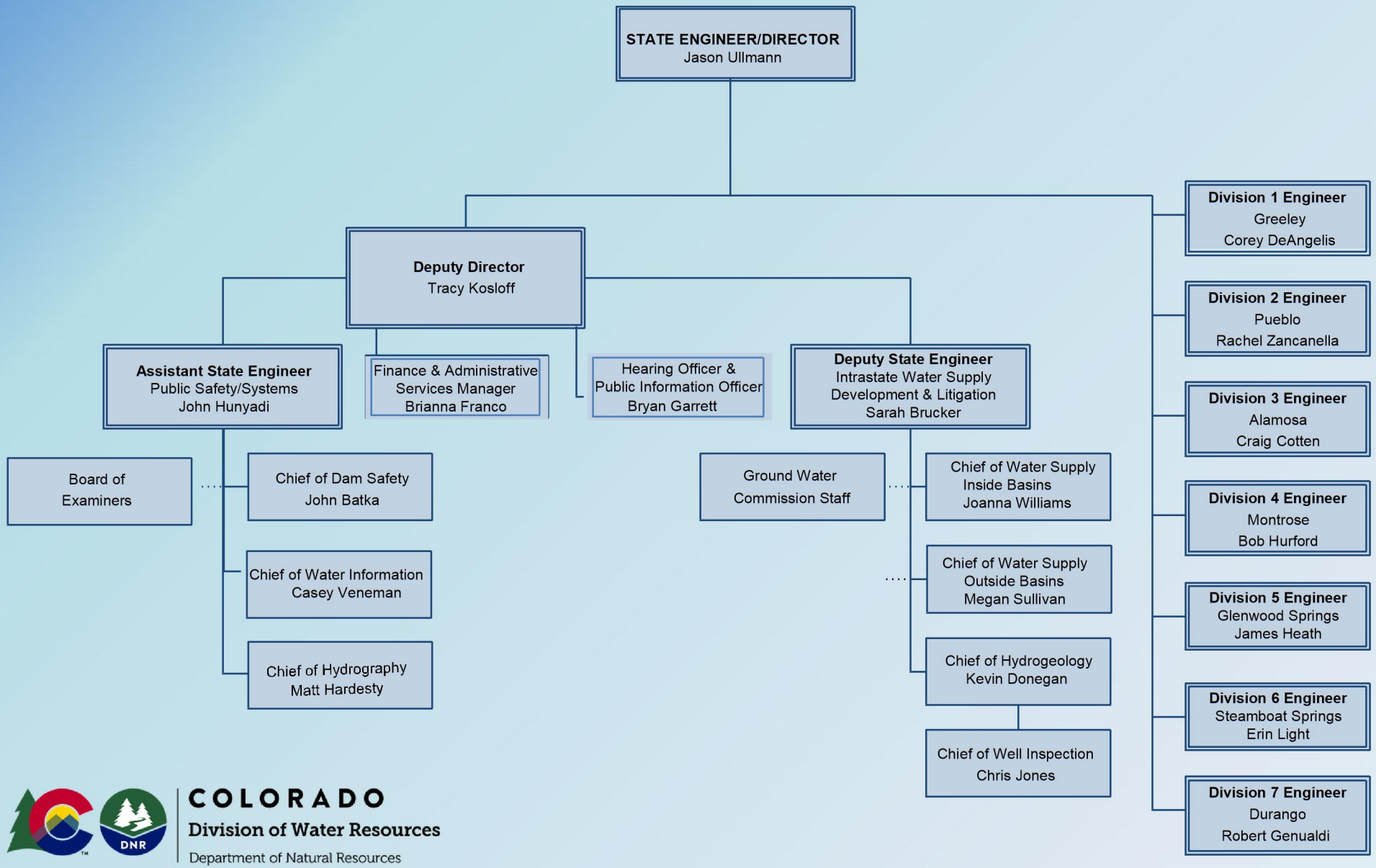
DWR Programs

- Water Administration
- Dam Safety
- Hydrography & Satellite Monitoring
- Hydrogeological Services
- Interstate Compacts
- Modeling & Decision Support Systems
- Water Supply
- Well Permitting
- Water Information & Data



COLORADO DIVISION OF WATER RESOURCES
ORGANIZATIONAL CHART

December 2024



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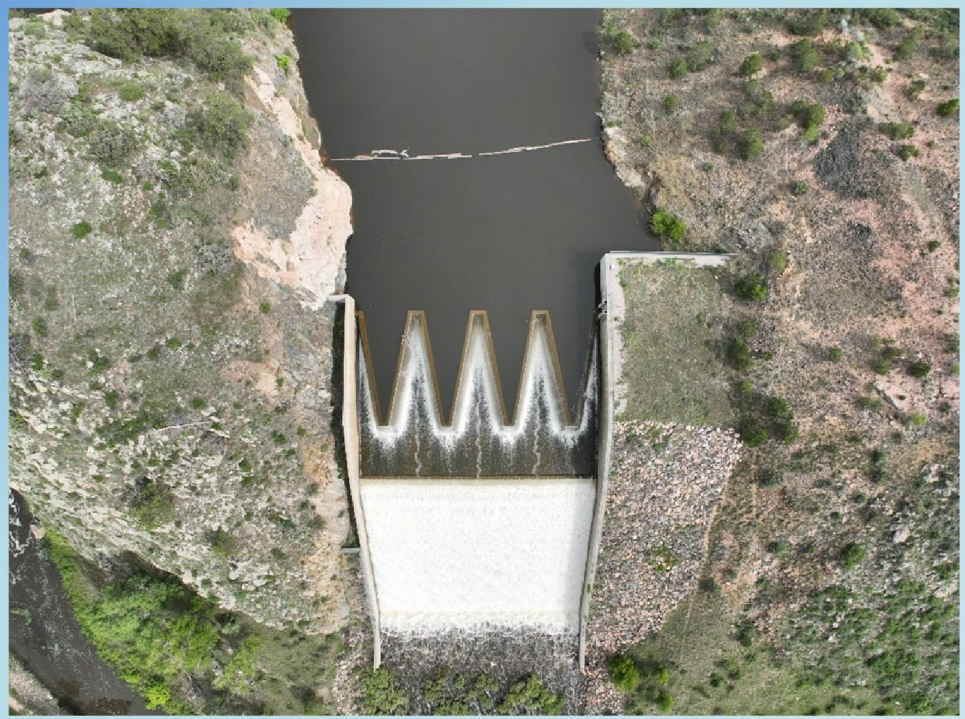
Gross Reservoir Construction

Photo by: Jason Ullmann



Colorado's Inventory of Dams by the numbers, 2024



Seaman Reservoir Spillway, Photo by David Bridge

High Hazard – ***410***

- Lives At Risk – 2.1 million, 36% of Coloradans
- Oldest – 1863. Average 1945.
- 34 Restricted High Hazard Dams

Significant Hazard – ***261***

- 15 Restricted Significant

Low Hazard – ***1,116***

- 82 Restricted low

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Safe Storage Determination Activities

Inspection Performance
Calendar Year 2024

Risk Based Prioritization

- ***Focused*** effort on High & Significant Hazard Dams
- Dam Safety Mission Focus to Prioritize Public Safety
- ***628*** *Inspections Completed to Assess Safe Storage Conditions*

Dam Safety Inspection Completion Percentage for Number Due	Percentage
High Hazard	100%
Significant Hazard	90%
Low Hazard	65%

Dam Safety Percentage of Complete Emergency Action Plans with Inundation Maps	Percentage
High Hazard	99.5% (up from 97% in 2023)
Significant Hazard	97% (Up from 73% in 2023)

Hydrographic & Satellite Monitoring Program



Gibralter Ditch new headgate, photo by Brian Romig

Division							
1	2	3	4	5	6	7	Grand Total
1628	497	1368	123	310	86	178	4208

Streamflow Measurements by Water Division

- Hydrographic staff maintained and operated 700 sites including streamgages, gage infrastructure, and satellite monitoring equipment.
- Hydrographic staff published 205 final streamflow records.
- Hydrographers and water commissioners made 3,637 gage visits and discharge measurements in Water Year 2024.
- The Satellite-linked Monitoring System (SMS) continues to provide real-time streamflow and storage data from gaging stations across the State of Colorado.
- DWR has implemented the Aquarius software package for management of streamflow record calculations and review. This Software-as-a-Service replaces the in-house developed Colorado Hydrologic Management System (CoHMS) and is improving the DWR streamflow record production efficiency and rating development.
- DWR continues to expand use of Acoustic Current Doppler Profilers (ADCP's) for more accurate, efficient and safe discharge measurements. DWR has almost completely replaced current meters with hydroacoustics (i.e. Flowtracker 2) for wading measurements.

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Hydrogeology Section Stats

The 2024 Numbers

Staff assistance:

- Aquifer determinations ► **Daily, trying to** top/base, saturated thickness, hydraulic properties, **reply within 2 weeks**
  lag depletions, return flow, etc
- Recharge pond reviews (HB-1013) ► **3** apps (+3)

Board of Examiners Support:

- Variances to Well Construction Rules ► **149** (+10%)

Groundwater Monitoring Program:

- Designated Basins (except Crow Creek),
- Lower South Platte Alluvial, Denver Basin, West Slope, North Park

Permit Condition Amendments: ► 193 (-13%)

- Geophysical log waivers (90), aquifer depth/other (79)

Hydrogeology Section Stats

The 2024 Numbers (cont.)

Well Inspection Program

- Inspections ► **936 (-6%)**
- Complaints/Violations Investigated ► **38 (+14%)**
- Resolved Complaints ► **42 (+85%)**
- Stipulated Settlements ► **28 ($31,550)**

COGCC UIC Review ► 8 (+4)

Rulemaking –

- Well Construction Rules ► **Upcoming Hearing**
- BOE Admin (Licensing) ► **Late 2025**
- Shallow Geothermal Rules ► **Following** (Permitting & Construction Standards) **BOE Admin**
- Nontributary Groundwater Rules ► **2025/2026?**



Elephant Butte Reservoir, New Mexico, photo by Jason Ullmann

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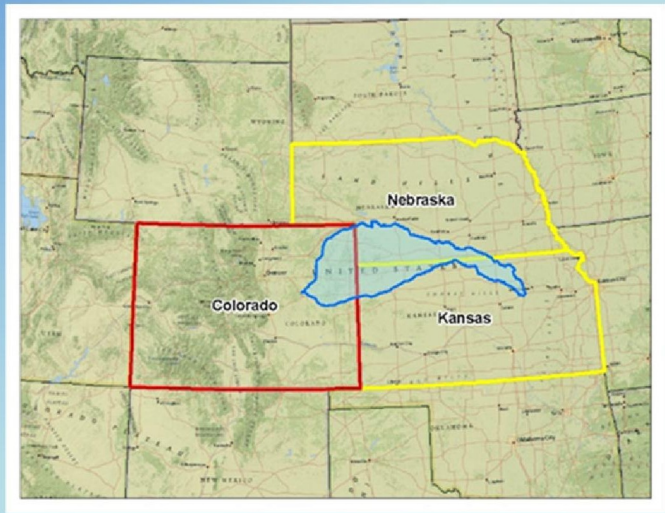
Interstate Compacts



Republican River

- Coordinated with the Republican River Water Conservation District and achieved retirement of at least 10,000 acres in the South Fork Focus Zone.

Colorado River

- Lake Powell water year 2024 inflow was 7.98 million acre-feet (maf) with a release of 7.48 maf.
- Ten-year average flow at Lee Ferry was 86.03 maf on September 2024.
- 2000-2024 estimated average natural flow at Lee Ferry = 12.4 maf
- Blue Mesa storage recovered and nearly filled in 2024 partly due to the significantly above average snowpack in 2023.
- Negotiations for post-2026 operations are ongoing with Commissioner Becky Mitchell representing Colorado on the Upper Colorado River Commission.



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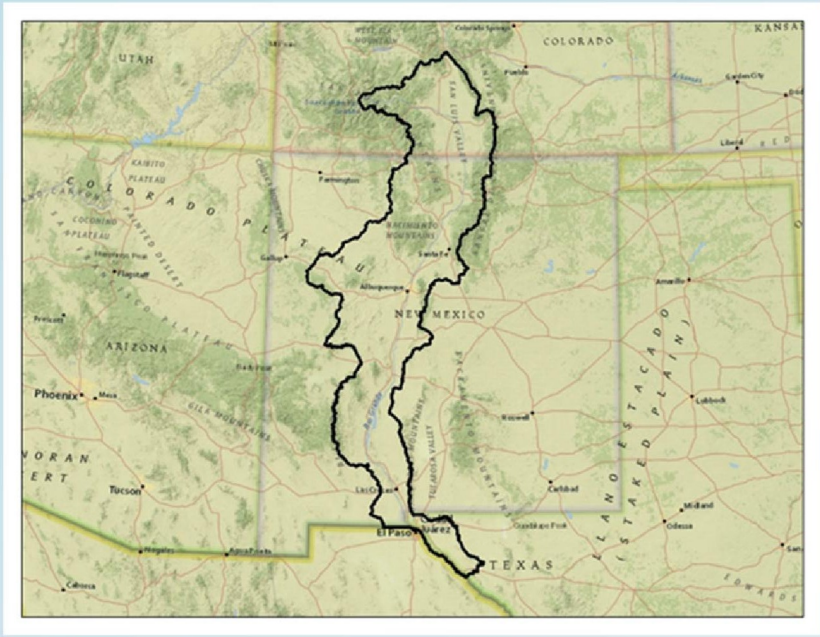
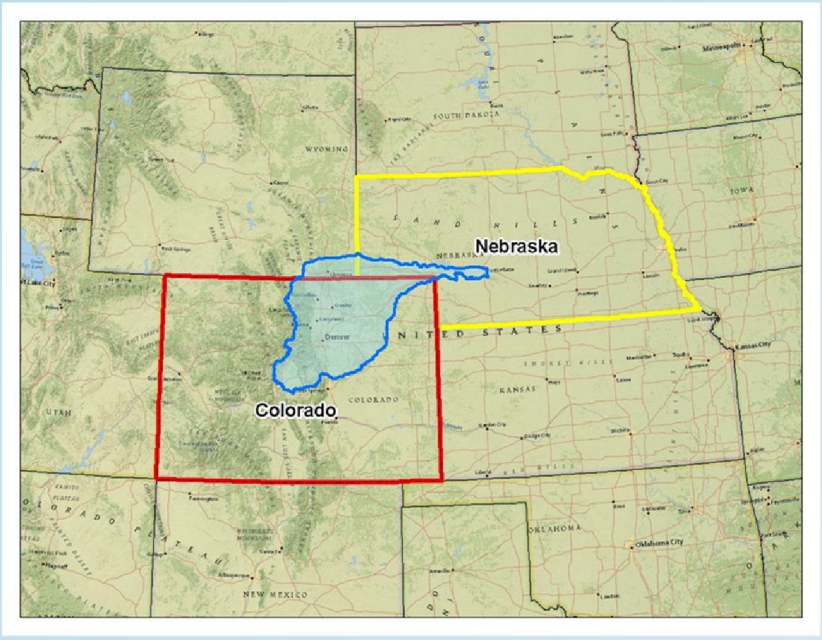
Interstate Compacts

Rio Grande

- Litigation before U.S. Supreme Court is ongoing. Oral arguments heard on March 20, 2024, with a decision handed down on June 21, 2024 denying entry of the Consent Decree. The Court appointed new Special Master D. Brooks Smith who directed the three states and the U.S. to return to mediation at a status conference on October 23rd. Mediation resumed in Washington DC on December 10th at a three day meeting and will continue in Pittsburgh, PA in February of 2025.





South Platte

- Colorado officials continued discussions with Nebraska to understand their plans related to construction of the Perkins County Canal.

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Seaman Reservoir Spillway,
photo by Brianna Krauser

Modeling 2024 Projects

RGDSS – Developed and implemented model refinements to nearly finalize the Phase 7 RGDSS model.

ArkDSS – Continued refinement of the code for specialized operations in the ArkDSS STATEMOD surface water model.

Colors of Water – Finalized the Scenario Planner component of the tool to evaluate transit loss and design headgate operations to capture reservoir releases.

OpenET data – Developed new methods to use OpenET to evaluate irrigation efficiency on a large scale.

Application Development Team 2024 Highlights

eForms

- Well Abandonment form deployed – so far 1,200 submitted other eforms: 25,000 Change of Owner; 2,300 Notice of Intent

HBweb Environment

- Dam – Main Complete and EIR Nearly Complete
- eForm Intake (Web version & form history added)
- Imaged Docs (Web version)

HBDMC

- Well Permit process improvements
- Structure upgrades – Water Rights; DryUp automation

Water Supply 2024

SWSPs

- Analyzed and approved 191 total Substitute Water Supply Plans (SWSPs)

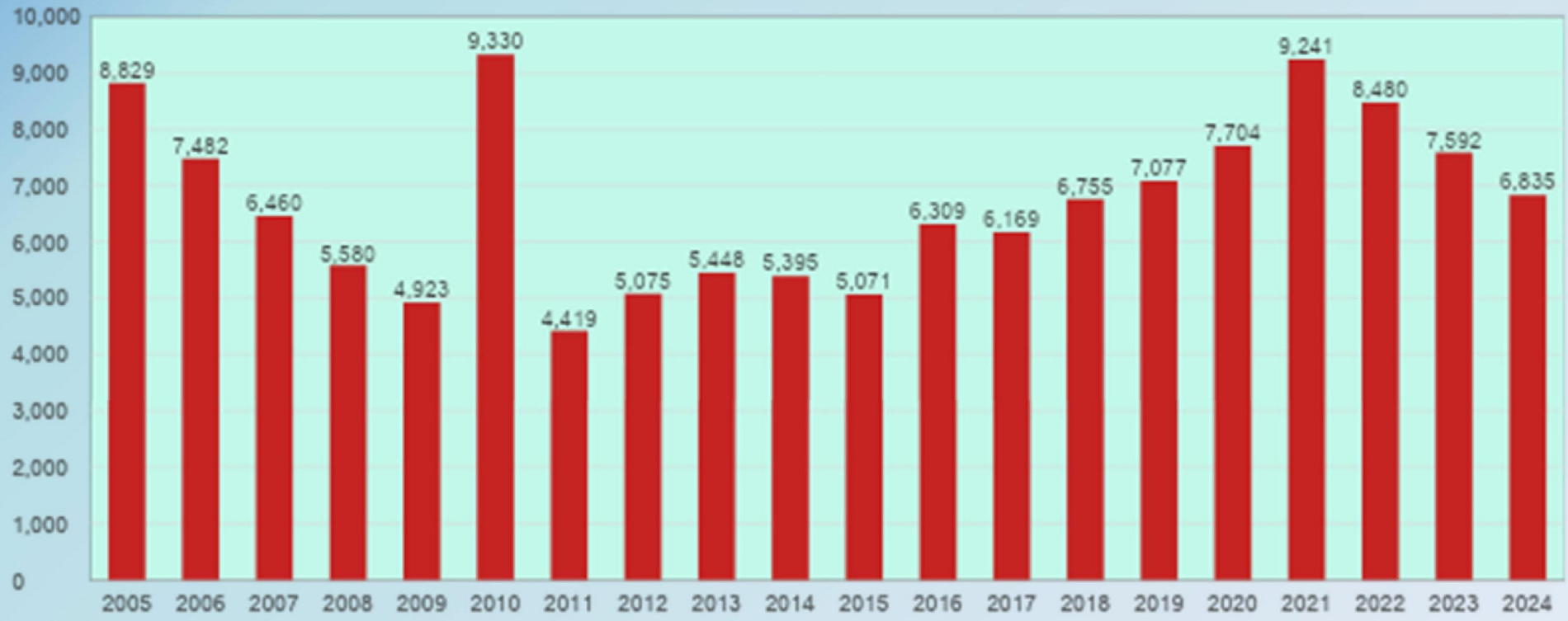
Well Permits

- Received and acted on 6,835 well permits and NOIs issued, broken down as: 3,056 Residential/Livestock wells (45%); 1,983 monitoring & observation wells (29%); 1,025 monitoring hole & 146 dewatering notice of intents (17%); 500 General purpose (7%); 114 Basin Determinations (1.6%); and 11 Gravel Pits (0.16%)

AskDWR

- Received 2778 total ASKDWR inquiries in 2024

Well Permit Activity



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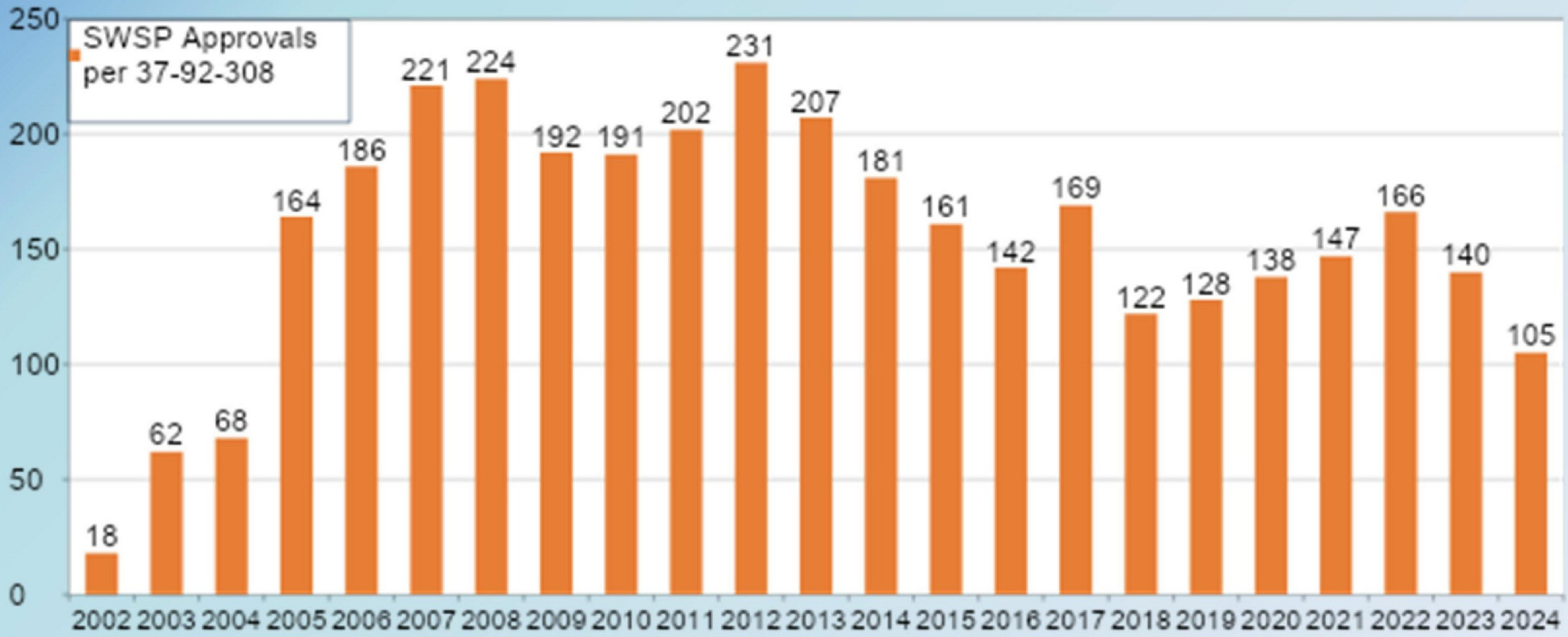
SWSP Activity



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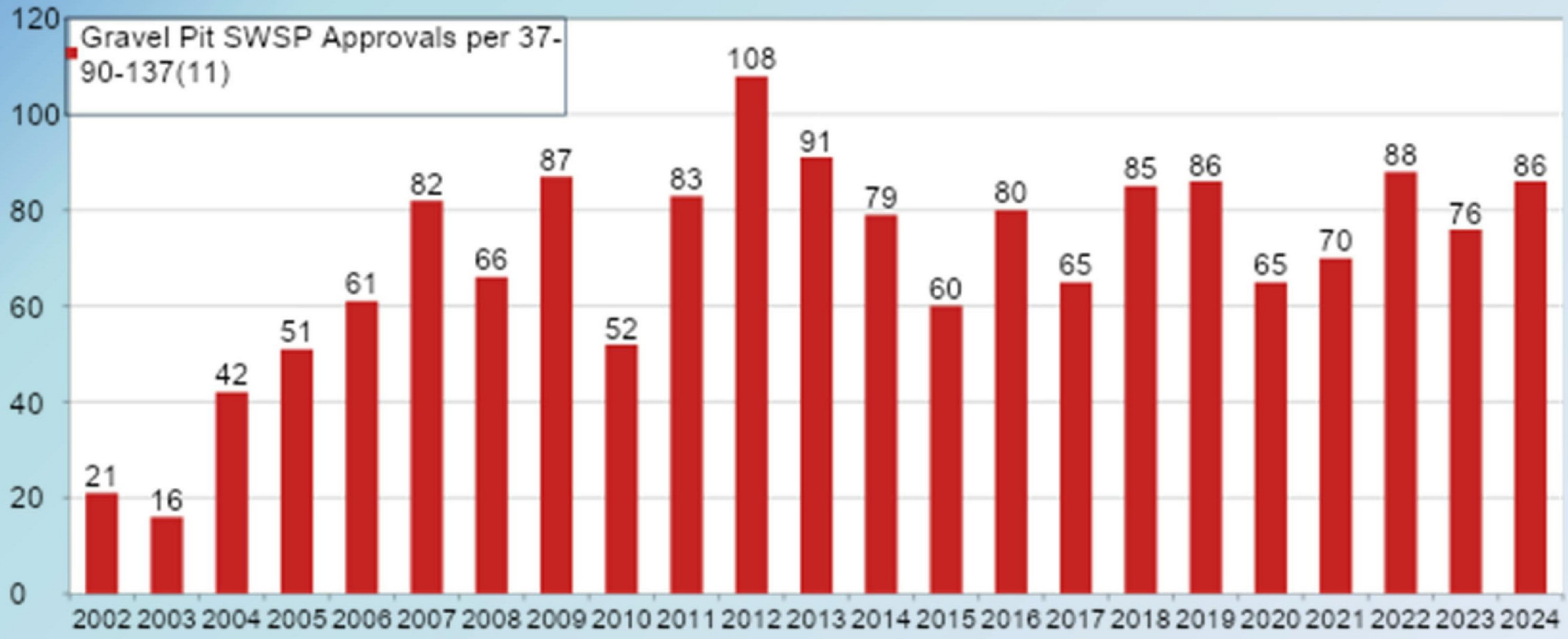
Gravel Pit SWSP Activity



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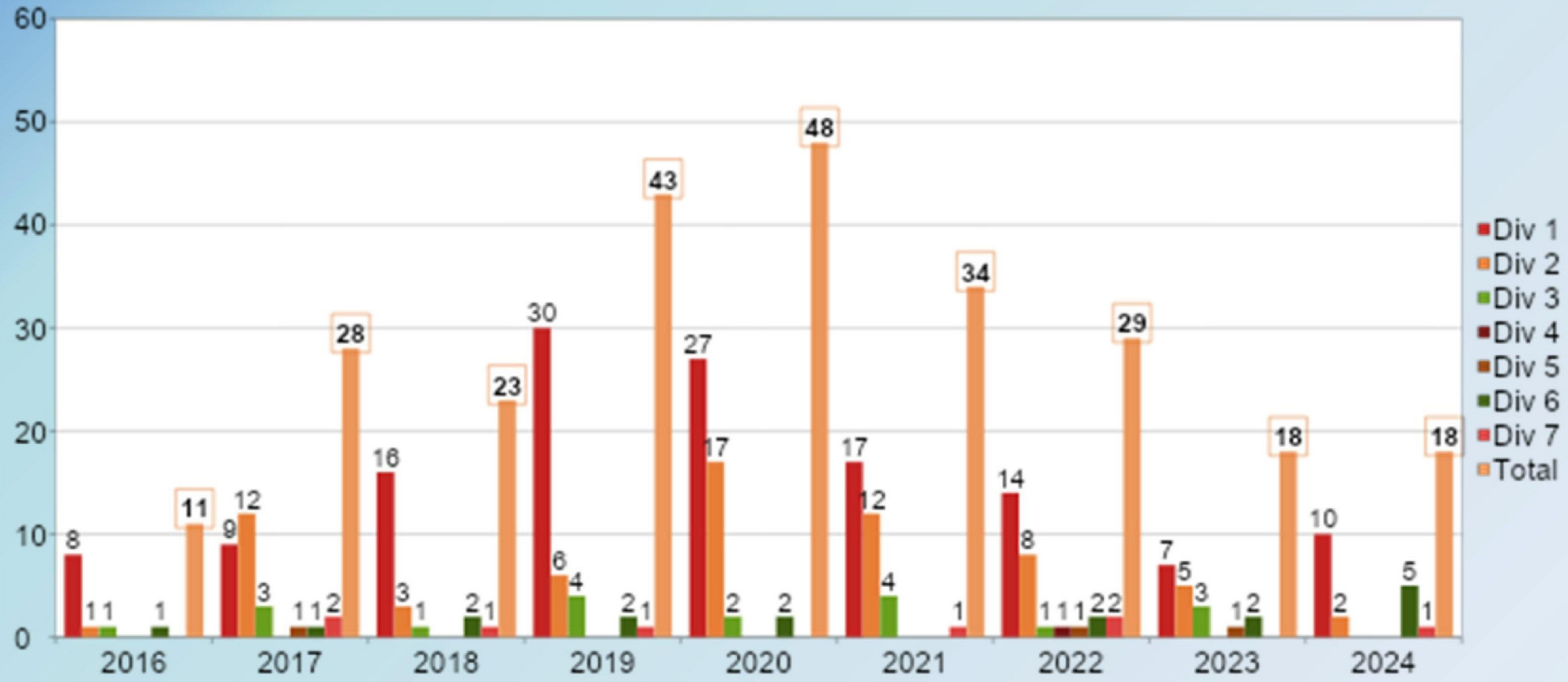
Resume Review –Statements of Opposition



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South Platte River Basin
Water Division 1

The near to above average precipitation throughout the basin during the months of February, March and April resulted in no Drought Conditions throughout the entire South Platte basin. However, the trend towards warmer than average temperatures and below average precipitation throughout the basin during the month of May into June resulted in Drought Conditions (D0 Abnormally Dry) in portions of Larimer, Weld, counties near the foothills onto the plains as well as Yuma, Lincoln and Kit Carson Counties to the east.

The South Platte Well Team continued its work with approximately 6,284 wells that fall within the scope of the South Platte Well Measurement Rules. The Team worked to ensure wells with expiring totalizing flow meter tests remained in compliance with the Rules and wells with expired tests came back into compliance with the Rules.

The Republican River Well Team continued their efforts of administering the Republican River Basin Groundwater Measurement Rules (Rules) in 2024, including conducting approximately 275 well measurement device verification field tests, field inventory of approximately 620 wells, and field inspection for compliance of approximately 292 wells filed as inactive in accordance with the Rules. The well team assisted with Well Tester certification classes, and conducted in-field follow-up recertification of approximately 26 certified well testers. These efforts support the requirements of the Republican River Compact Area Well Measurement Rules, and other Basins Ground Water Measurement Rules, that measurement devices be verified by a person qualified ("certified") by the State Engineer.



Moffat Tunnel Outlet
Photo by Russell Stroud

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Arkansas River Basin Water Division No. 2



The 2024 water supply was generally better than it has been in recent years, which was the result of near-average drought conditions and a snowpack of greater than 100 percent of the historic average basin wide. The Arkansas River basin was considered an “Average” year in the year-type calculations developed for use in the basin from the 1950 period forward. To compare years for water supply conditions in the larger irrigation areas along the mainstem from Pueblo to the stateline, a comparative tool has been used that totals the flow through Pueblo Reservoir, the flow to the Arkansas River from Fountain Creek and the flow to the Arkansas River from the Purgatoire River and compares that total to each year from 1950 through 2024. Using this criteria, 2024 ranked as the 46th lowest flow rate year in the 75 year period. The lower and southern portions of the Arkansas River Basin continued the trend of experiencing conditions drier than the upper basin with tributaries such as Cucharas, Apishapa, and Purgatoire Rivers experiencing snowpack peaks at single digit percentages of average resulting in very little water availability.

The final report for the Pueblo Winter Water Storage Program for the period November 15, 2023 through March 14, 2024 showed a system grand total of 113,469.88 acre-feet which was 28,274 acre-feet or 33.0% more than was stored in the previous year and 1,802.12 acre-feet or 1.6% less than the previous 20-year average.

Irrigation well pumping represented in the H-I Model during 2024 totaled 63,737 acre-feet. For User Groups 1-14 (above John Martin Reservoir Area) the total pumping was 40,664 acre-feet and for User Groups 15-24 (below John Martin Reservoir) the total pumping was 23,073 acre-feet. Resulting 10-year stateline credit as calculated using the H-I Model for the period of 2014-2023 sits at 7,449 acre-feet.

17 new augmentation plans were decreed during 2024, bringing the total to 718 plans within Div. 2



Bill Tyner and Lonnie Spady with members of Otero Canal, photo by Rachel Zancanella

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The Rio Grande Basin Water Division No. 3

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Silver mine above the Town of Creede, photo by Darin Schepp

In 2024, the aquifer level of the unconfined aquifer of the Closed Basin was within ±1,700 acre-feet of the lowest level on record which was measured in September 2013.

During the 2022-2023 winter, the Rio Grande Basin snowpack and snow-water equivalent (SWE) amounts for most of the headwater areas peaked at approximately 110% of the 30-year median peak, but this 30-year median represents a lower than long-term average snowpack and runoff period. The melt-out of the snowpack occurred somewhat sooner than usual, resulting in the runoff peaks on the Rio Grande and Conejos systems that were close to average but that occurred earlier than the long-term median peaks. The generally dry conditions resulted in annual streamflows for the majority of rivers and streams in Division 3 that were significantly below the long term average.

The actual water delivery at the state line was very close to compact obligations until precipitation events in early November bumped our stateline delivery above those obligations, resulting in an end of the year credit under the Rio Grande Compact of 7,200 acre-feet for Colorado.

The team working on RGDSS updates pursuant to the Groundwater Use Rules continued to make progress on working to update the model to Phase 7, which will include 10 additional years of well pumping and updated model inputs for irrigation efficiency and GIS coverages. This model will eventually be used to update response functions that are used to determine replacement obligations under Annual Replacement Plans (ARP) for each subdistrict.





The Gunnison River Basin Water Division No. 4

More average supply conditions returned following 2023 that included significantly above average snowpack and runoff. However, 2024 snowpack was not very evenly distributed throughout the Division, with the Upper Gunnison Basin receiving slightly better than average snowpack and the North Fork River basin receiving just under 80 percent of average, the Uncompahgre River Basin just under 75 percent.

The average April through July unregulated inflow into Blue Mesa Reservoir was approximately 672,000 acre-feet, which allowed the reservoir to fill to within 19 ft of full in early July.

The Grand Mesa received only about 80 percent of the normal snowpack during the 2023-2024 snow accumulation season. In addition, the runoff was approximately three weeks earlier than normal. However, the cool and rainy May and June help to prop up water supplies and reduce the demand on storage water deliveries to the orchardists during the summer, which resulted in adequate carryover into 2025.

In 2024, a total of 370 well permits were issued, which was an increase from the 188 permitted in 2023.



Bob Hurford and Tracy Kosloff at the Montrose and Delta Canal headgate on the Uncompahgre River

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The Colorado River Basin
Water Division No. 5

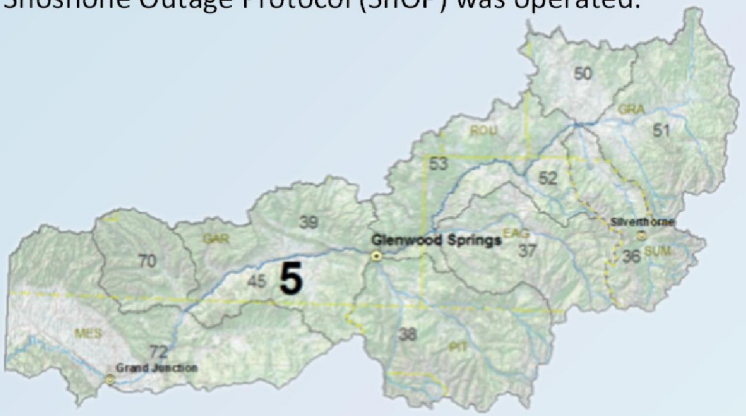


Colorado River upstream from Utah border,
Photo by James Heath

The 2024 water year began with storage in the basin's major reservoirs at about 23,000 acre-feet more than the median and ended with storage at 4,000 acre-feet less than median. Comparison of end-of-year storage for each year, beginning with the extremely dry year of 2012, is shown in the table below. The physical capacity of these reservoirs is 1,220,000 acre-feet.

The average runoff in 2024 for Water Division 5 was the result of average snowpack, slightly above normal reservoir storage entering the year, and late season snow in May on the Front Range that reduced the demand for transmountain diversions. Typical replacement obligations during the summer resulted in about normal reservoir storage at the end of the irrigation season.

The Shoshone Power Plant was not operating a full capacity for a significant portion of the year, from February 23rd to August 9th, due to maintenance work and rockslides that resulted in rock fall mitigation work. During periods where the Plant was offline the Shoshone Outage Protocol (ShOP) was operated.



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The Yampa and White River Basins
Water Division No. 6



Gardner Park Reservoir, Photo by Lauren Berrien, Engineering Technician

In 2024, Snow water equivalent (SWE) in the Yampa-White-Little Snake basins peaked on April 8, 2024, at 22.4 inches; while the median peak SWE, based on the period 1991 through 2020, is 20.2 inches occurring on April 8th (110% of median).

The SWE in the Laramie-North Platte basins peaked on April 18th at 23.7 inches; while the median peak SWE, based on the period 1991 through 2020, is 24.6 inches occurring on April 22nd (96% of median).

There was no call on the mainstem of the Yampa River in 2024 as there was ample natural flow throughout the system to meet the needs of all the water users.

In irrigation year 2024, a total of 210 well permits were issued. Of this number, 21 were monitoring hole notices, 41 were for monitoring/observation wells, 3 were for dewatering wells, and 145 were for production wells or groundwater ponds.



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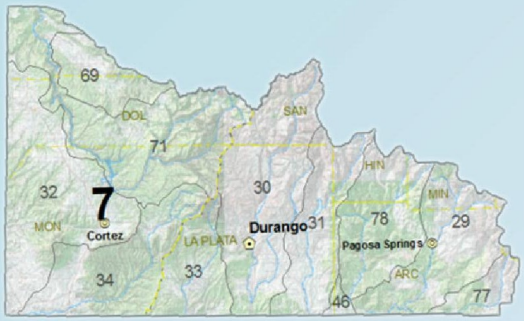
San Juan and Dolores River Basins
Water Division No. 7



Snowpack in the San Juan and Dolores River Basins during the winter of 2023-2024 (Water Year 2024) was average for the San Miguel-Dolores-Animas-San Juan drainage basin.

There were 119 administrative calls placed on 11 different stream systems in Division 7 during the year.

In 2024 246 well permits were issued. Of those, 168 were residential well permits, 22 were general purpose well permits, and 56 were monitoring/observation wells. There were no geo-exchange system loops, dewatering wells, or rooftop precipitation collection systems permitted in 2024.

Snowpack in the La Plata River Basin was close to average in the spring of 2024. The compact call from New Mexico was placed the morning of April 15th for 100 cfs. At this time administrative changes began, and the call was set to Freed Ditch priority 56. In total there were 30 call changes during the water year.

Long Hollow Reservoir started the water year at 1,113 AF and reached its peak capacity for the water year at 2,093 AF (approximate 40% full) on April 15. In total, 1,678 AF was released for exchange.



Monsoon rains South of Hesperus, photo by Shannon Manfredi

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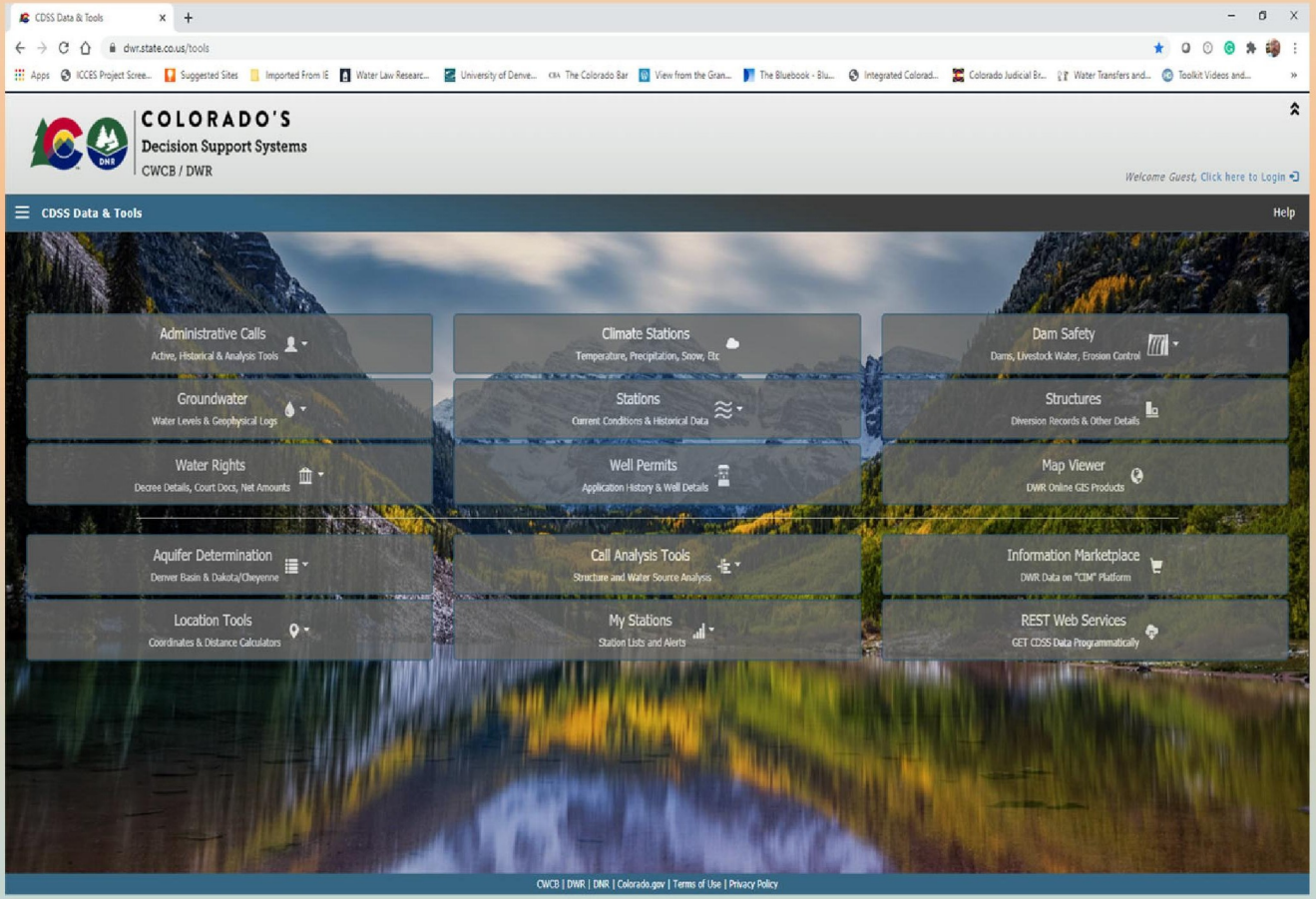
Grand Mesa overlooking Mesa Creek Reservoir No. 4, Photo by James Heath

Colorado's Water Information Hub

Colorado has a nation leading database of water rights, diversions, streamflows, permits, tools and etc… that can be accessed through the Colorado Decision Support System (CDSS) landing page (shown below) at dwr.state.co.us/tools or by scanning the QR Code shown at right below.



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For detailed division reports please visit imaged documents, Publications and Reports at: https://dwr.colorado.gov/



Irrigation in the San Luis Valley, photo by John Fleck