

2023 Annual Report



COLORADO
Division of Water Resources
Department of Natural Resources



Flying over Elk Mountains March 2023, photo by Jason Ullmann

2023 In Review

It is an understatement to say that 2023 brought substantial leadership changes in the State Engineer's Office. Deputy Director Mike Sullivan retired at the end of February and State Engineer Kevin Rein retired on December 31, both after long and successful careers with DWR. In addition, DWR's longtime legal partner, First Assistant Attorney General of the Water Resources Unit, Paul Bennington, retired midyear. Tracy Kosloff replaced Mike Sullivan as Deputy Director in March, and Sarah Brucker filled Tracy's resulting vacant position in May. While these retirements represent a challenge due to the loss of valuable institutional knowledge, they also represent an opportunity to look at the way DWR performs its mission in a new way. Following State Engineer Rein's retirement in December the selection process for new State Engineer commenced and concluded with my appointment as State Engineer and Director of the Division of Water Resources in March of 2024. I am honored to be appointed to this position and look forward to leading DWR in 2024 and beyond.

Thankfully, 2023 also brought a statewide snowpack that peaked at 140 percent of average in early April, with the Gunnison and San Juan basins peaking above 165 percent of average. Runoff from this snowpack allowed significant recovery of reservoir storage in Colorado with Blue Mesa Reservoir storage peaking at 375,000 acre-feet more than in 2022. The resulting deluge of spring runoff however, also brought with it challenges as the Dam Safety Team was called on to respond to 29 incidents, from concerns regarding first time spillway flows to those involving overtopping and short-term evacuations of campers or residents.

As in past years, the dedicated staff of DWR around Colorado continued to work day in and day out towards achieving our mission to *"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"*. The innovative ways these activities are conducted and the challenges encountered are highlighted in the reports of DWR's different programs. Some unique activities that occurred in 2023 include:

- Working with the Republican River and Rio Grande water conservation districts to review and approve the use of \$60 million to retire lands from irrigation for compact compliance and sustainability requirements, respectively.
- State Engineer Rein participated in the legislatively-directed Colorado River Drought Task Force, which culminated in the publication of a report with recommendations for drought resilience in the Colorado River Basin, including legislative proposals.
- Increased attention to providing public information & communicating updates to stakeholders. This includes the addition of several videos to DWR's website such as, [Colorado's Water Priority System and DWR's Water Commissioners' Role](#), and [Water Information for Real Estate Agents and Home Buyers](#). DWR also began distributing a newsletter to subscribers to DWR's news and events notification list to describe changes and updates.
- Issuing a [memo](#) describing DWR's approach to claims to appropriate or not replace return flows in change cases in an effort to resolve ongoing uncertainty about the issue.
- Supporting DWR's sister agency, Colorado Energy and Carbon Management Commission to craft legislation to bifurcate authority for the regulation of geothermal energy projects, considering that geothermal energy is associated with groundwater.


Jason Ullmann
State Engineer/Director



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Our mission:

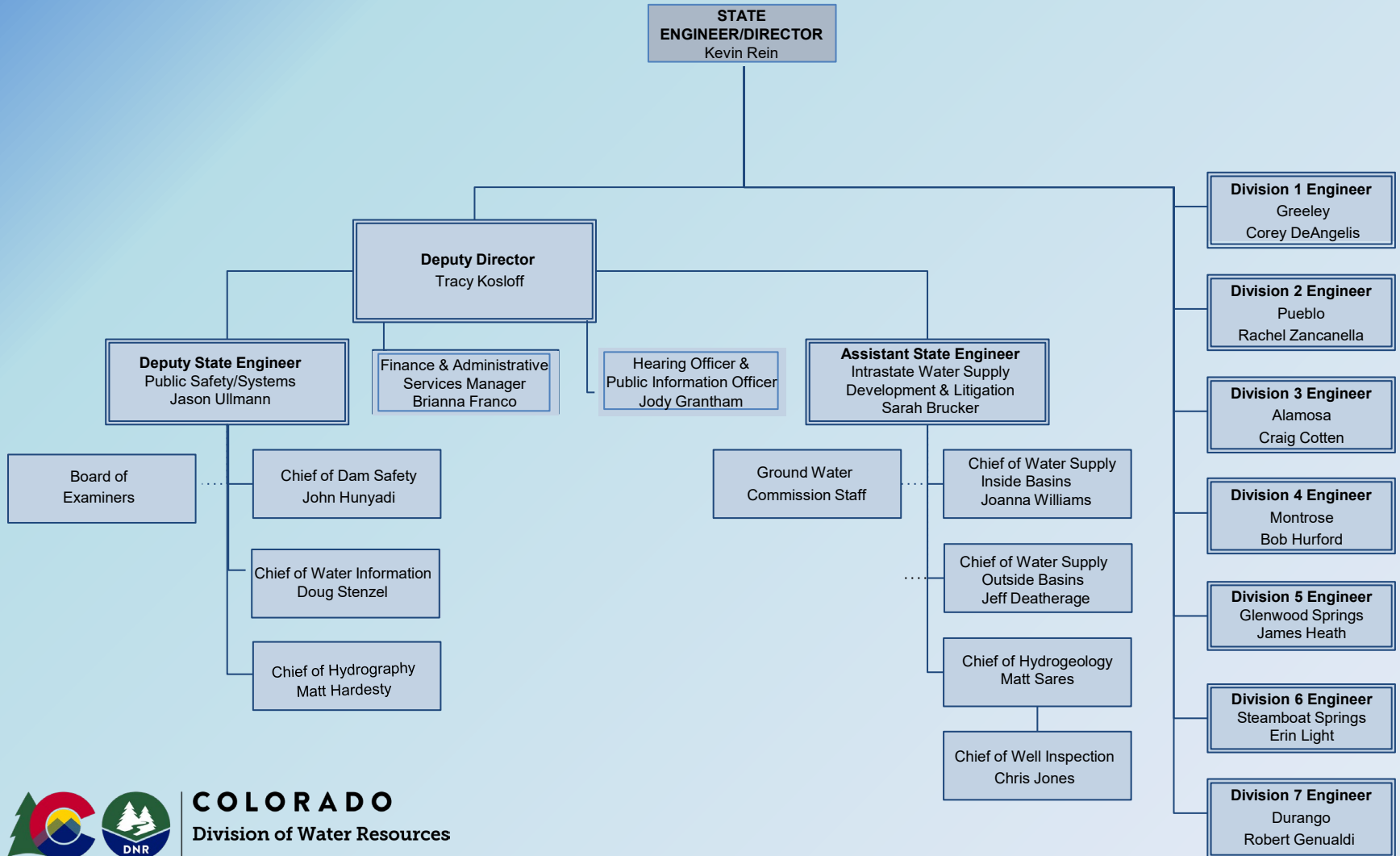
The Division of Water Resources will administer the waters of the State to maximize lawful beneficial use, ensure that dams and water wells are properly constructed and safe, and provide information about water resources to the public.

Our 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 2023



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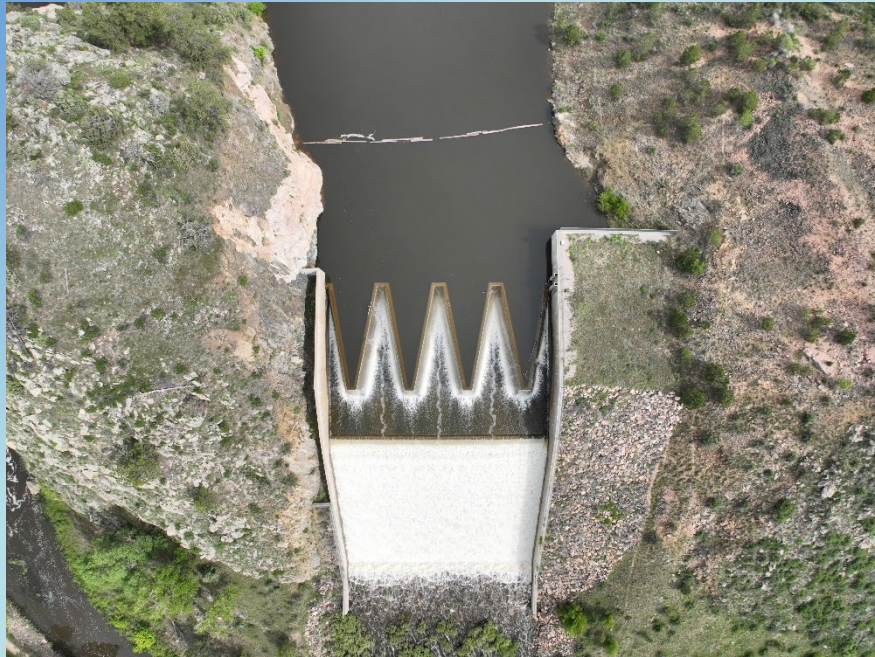
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Asphalt Core - Chimney Hollow Dam

Photo by: Jason Ullmann



Colorado's Inventory of Dams by the numbers, 2023



Seaman Reservoir Spillway, Photo by David Bridge

High Hazard – **461**

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

Significant Hazard – **289**

- 15 Restricted Significant

Low Hazard – **1,904**

- 82 Restricted low



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Safe Storage Determination Activities

Inspection Performance

Calendar Year 2023

Risk Based Prioritization

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

Dam Safety Inspection Completion Percentage for Number Due	Percentage
High Hazard	100%
Significant Hazard	95%
Low Hazard	49%

Dam Safety Percentage of Complete Emergency Action Plans with Inundation Maps	Percentage
High Hazard	97% (Down from 99% in 2022)
Significant Hazard	73% (Up from 70% in 2022)



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Hydrographic & Satellite Monitoring Program



Gibraltar Ditch new headgate, photo by Brian Romig

- 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 2023.
- The Satellite-linked Monitoring System (SMS) continues to provide real-time streamflow and storage data from gaging stations across the State of Colorado.
- Implementation of the Aquarius software package for management of streamflow record calculations and review has begun. This Software-as-a-Service will replace the in-house developed Colorado Hydrologic Management System (CoHMS) and should significantly improve DWR streamflow record production quality and efficiency.
- Expanded use of Acoustic Current Doppler Profilers (ADCP's) for more accurate, efficient and safe discharge measurements continues. DWR has almost completely replaced current meters with hydroacoustics (i.e. Flowtracker 2) for wading measurements.

Division							
1	2	3	4	5	6	7	Grand Total
1654	395	1239	54	113	48	178	3681

Streamflow Measurements by Water Division



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Hydrogeology Section Stats

2023 Statistics

Staff assistance:

- Aquifer determinations
▶ **653** (-23%)
 - top/base, saturated ft, hydraulic properties, lag depletions, return flow, etc
- Recharge pond reviews (HB-1013) apps (-3) ▶ **0**

Board of Examiners Support:

- Variances to Well Construction Rules (+8%) ▶ **136**

Groundwater Monitoring Program:

1106 (-18%) ▶

- 6 Des. Basins, S. Platte, Denver Basin, (458 by DWR)
West Slope, North Park

Permit Condition Amendments:

193 (-22%)

- Geophysical log waivers (**139**), aquifer depth (**54**)



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Hydrogeology Section Stats

2023 Statistics (cont.)

Well Inspection Program

- Inspections ▶ **997** (-32%)
- Complaints/Violations ▶ **33** (+32%)
- Hearings ▶ **1** (0%)

Nontributary Initial Determinations (in process & completed)

- Water Court, Policy 2010-4, Produced Water ▶ **2** (-1)
- +/- 2 in preliminary discussion with Hydrogeo

COGCC UIC Review

▶ **4** (+1)

- ### Rulemaking - Nontributary Groundwater Rules
- Well Construction Rules
 - ▶ **Wrap in 2024?**



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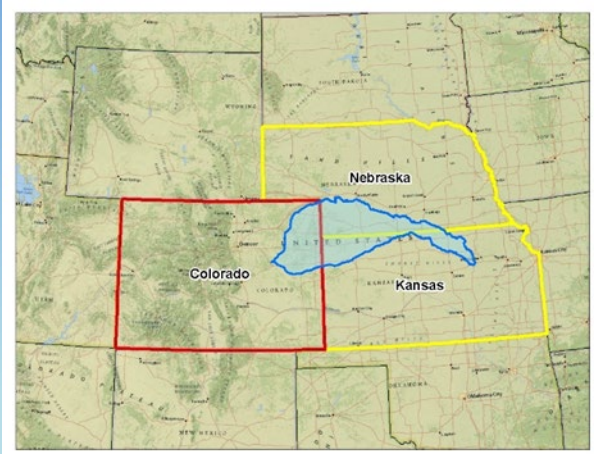


Michigan Ditch at Cameron Pass, photo by Corey Deangelis



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Interstate Compacts



Republican River

- Continued coordination with the Republican River Water Conservation District to achieve retirement of at least 10,000 acres in the South Fork Focus Zone by the end of 2024.

Colorado River

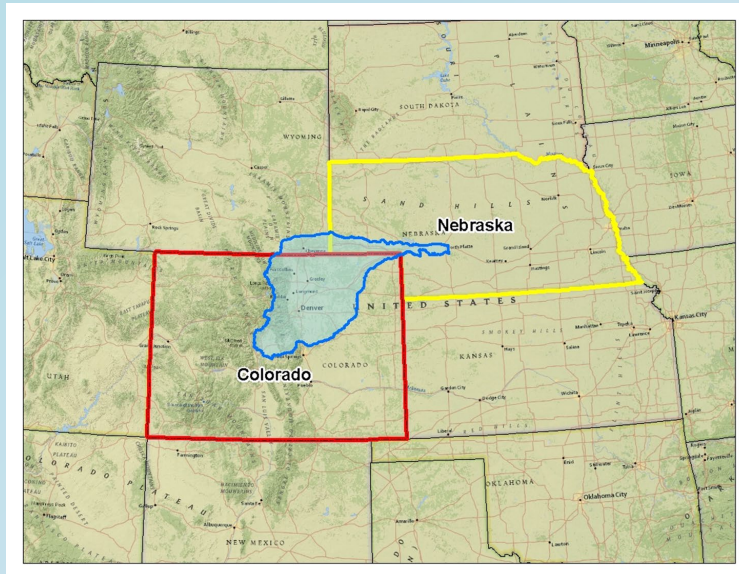
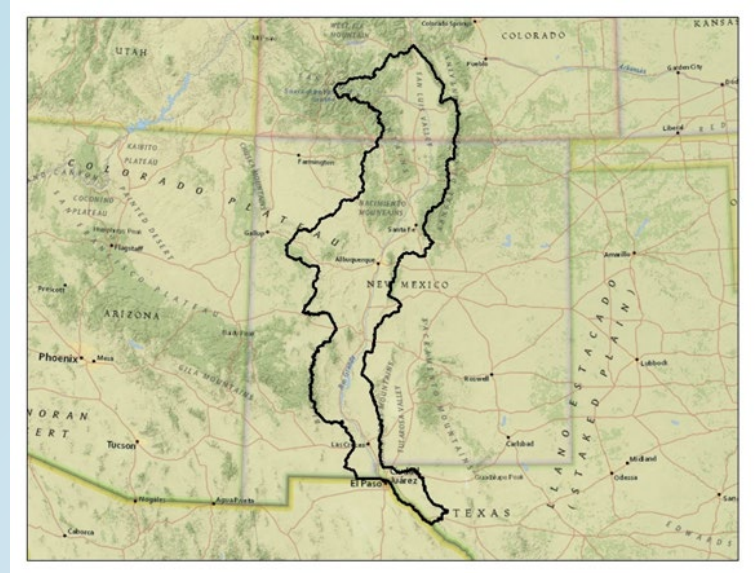
- Inflows into Lake Powell for Water Year 2023 were well above the recent average
- Becky Mitchell was appointed as Colorado's first full time Commissioner to the Upper Colorado River Commission - negotiations for post-2026 operations officially began with NEPA announcement.
- DWR filed proposed surface and groundwater measurement rules with the Division 6 (Yampa-White basin) in October 2022, with the expectation of a ruling in early 2024. Also in 2023, DWR staff held five stakeholder meetings for similar rules in Division 7 (San Juan/Dolores Rivers).



Interstate Compacts

Rio Grande

- Litigation continued as the consent decree between Texas, New Mexico and Colorado was opposed by the federal government. Oral arguments in front of the US Supreme Court were scheduled for March 2024.



South Platte

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



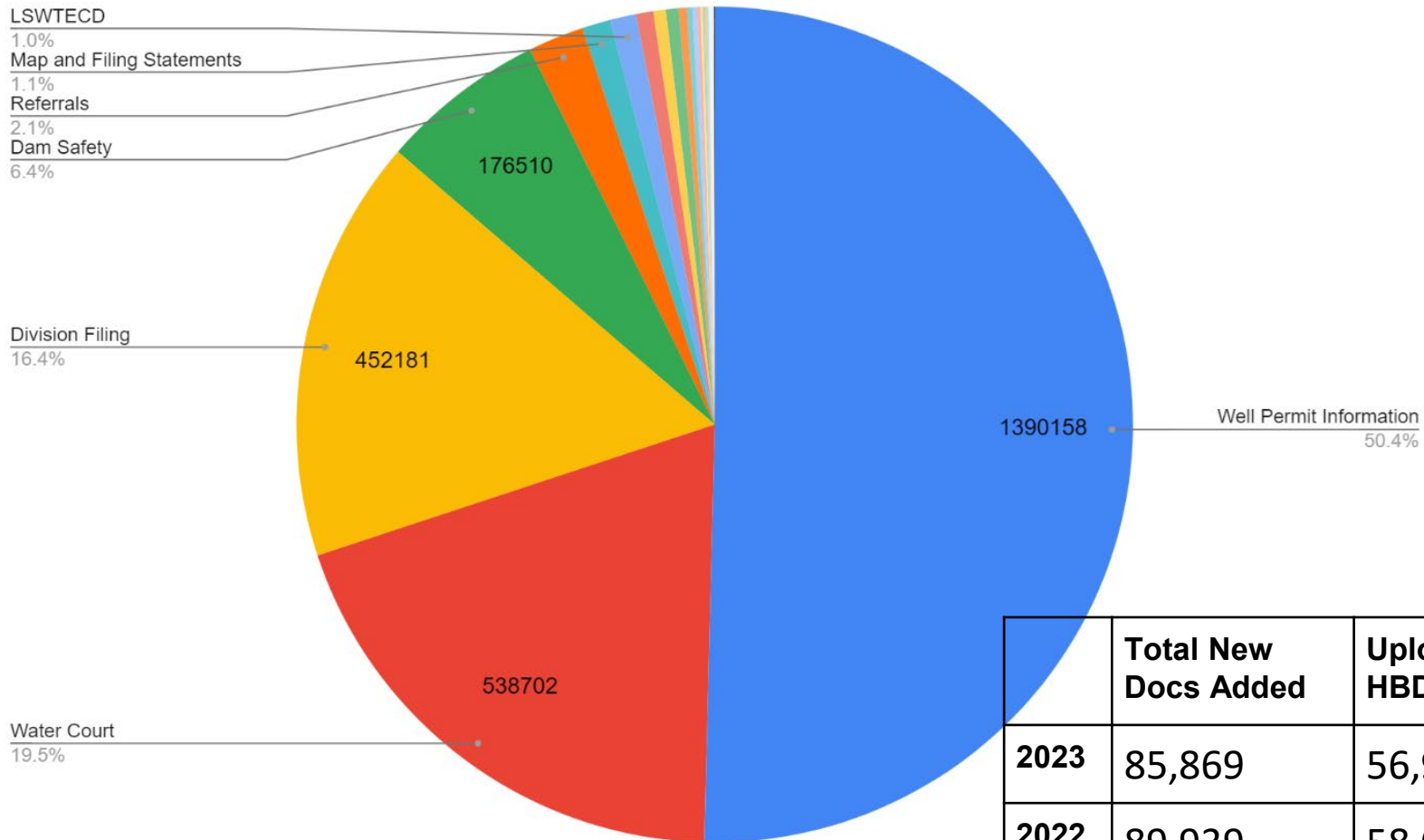
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Seaman Reservoir Spillway,
photo by Brianna Krauser

Laserfiche Files Loaded 2023



	Total New Docs Added	Uploaded w/ HBDMC
2023	85,869	56,938
2022	89,939	58,063
2021	95,121	62,437



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GIS 2023 Highlights

GIS Enterprise Contract Awarded - GTG
New Enterprise Configuration to Provide More Functionality
Web Services for Public, New Data Downloads

Imagery

2023 NAIP - 30cm Resolution. On Google Drive/XMap
Vexcel - Higher resolution aerial imagery available in Vexcel Viewer

MapViewers Updates

Dry-up layer updated for Div 1 & 2
County Parcels updated - new data available for these counties:
Bent, Baca, Lincoln, Washington, and Yuma



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Modeling 2023-24 Projects

RGDSS - Finalize Phase 7 Model and develop new response functions to characterize stream depletions as a function of pumping

ArkDSS - Complete ArkDSS STATEMOD model, develop Trinidad Reservoir Scenario, and start to run/update model in-house

Colors of Water - For Div2, add evaluation of exchanges and increase comfort level using Scenario Planner for administration. Evaluate use of viewer and planner in other reaches and basins.

OpenET data - Finalize RGDSS Div3 sprinkler efficiency evaluation and evaluate crop coefficients for grass hay and other crops



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App Dev Team 2023 Highlights

eForms

- Notice of Intent released
- over 17,000 Notice of Intent and Change of Owner submitted

HBweb Environment

- Dams rewrite - CDSE Risk Assessment deployed
- Color of Water - Viewer, Conductor/Manager, Scenario Planner
- Diversion Record Manager - QAQC/Records Review/Final Publish

HBDMC

- Dry-Up Automation
- images can be included in emails
- Fire Suppression Ponds
- Additional Structure Details



App Dev Upcoming

HBweb

- ADAT Management Module
- Dam Safety
- HydroGeo & BOE - upgrade from MS Access apps

eForms

- Abandonment
- Construction
- DRS-11/DRS-11A

Mobile Data Collection System

- Argis chosen - requirements gathering upcoming

GovDelivery

- Will work with ECM on replacing HBDMC Notification Lists



Water Supply

- Analyzed and approved 140 general Substitute Water Supply Plans (SWSPs) and 76 SWSPs for gravel pits
- Reviewed, analyzed, and provided 689 (up from 645 in 2022) comments to Colorado counties regarding the water supply for proposed subdivisions and other land use actions
- Received and acted on 6,064 well permit applications and processed 1,265 Monitoring Hole Notices, 9,434 Changes in Ownership/Contact Information requests, Well Construction and Test Reports, and 4,293 Pump Installation Reports, 3,630 Well Construction And Yield Estimate Reports, and 3,564 Pump Installation And Production Equipment Test Reports
- Issued 13 final permits, 263 determinations of water rights, 29 change application approvals, and 12 replacement plans in designated basins.



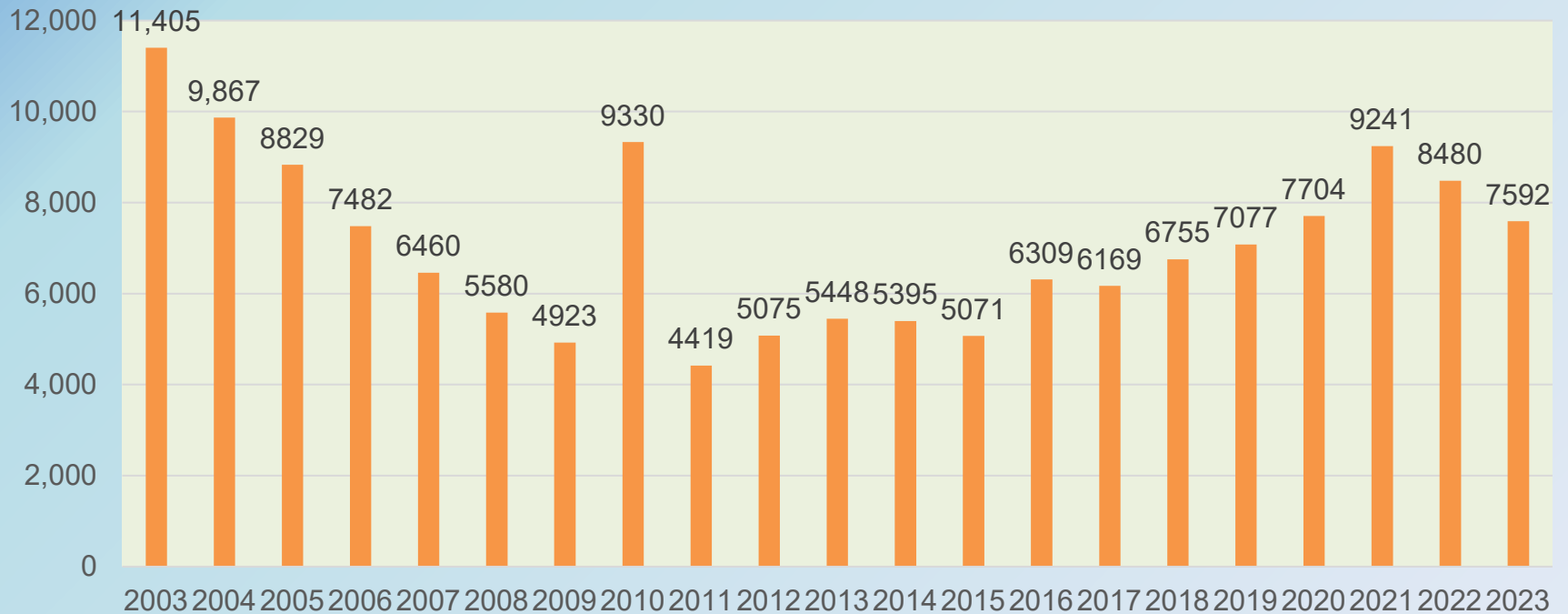
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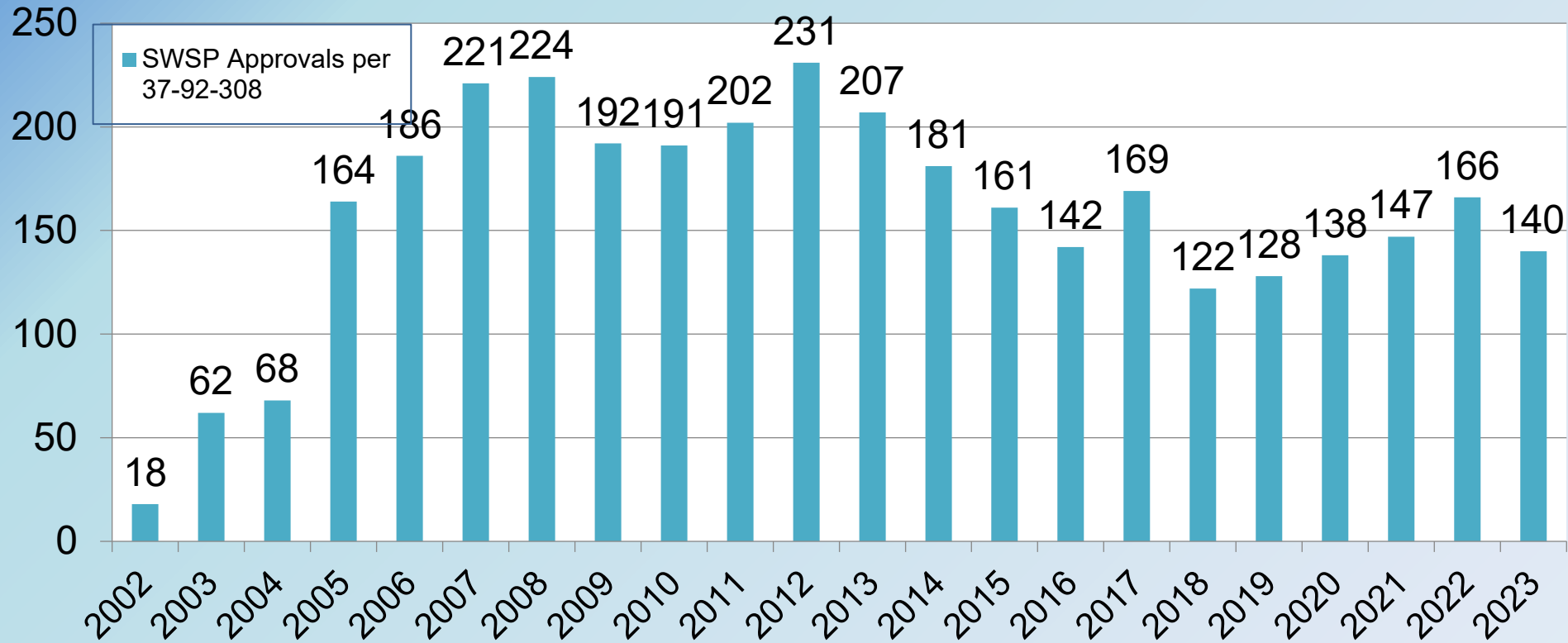
Well Permit Activity

Total Applications



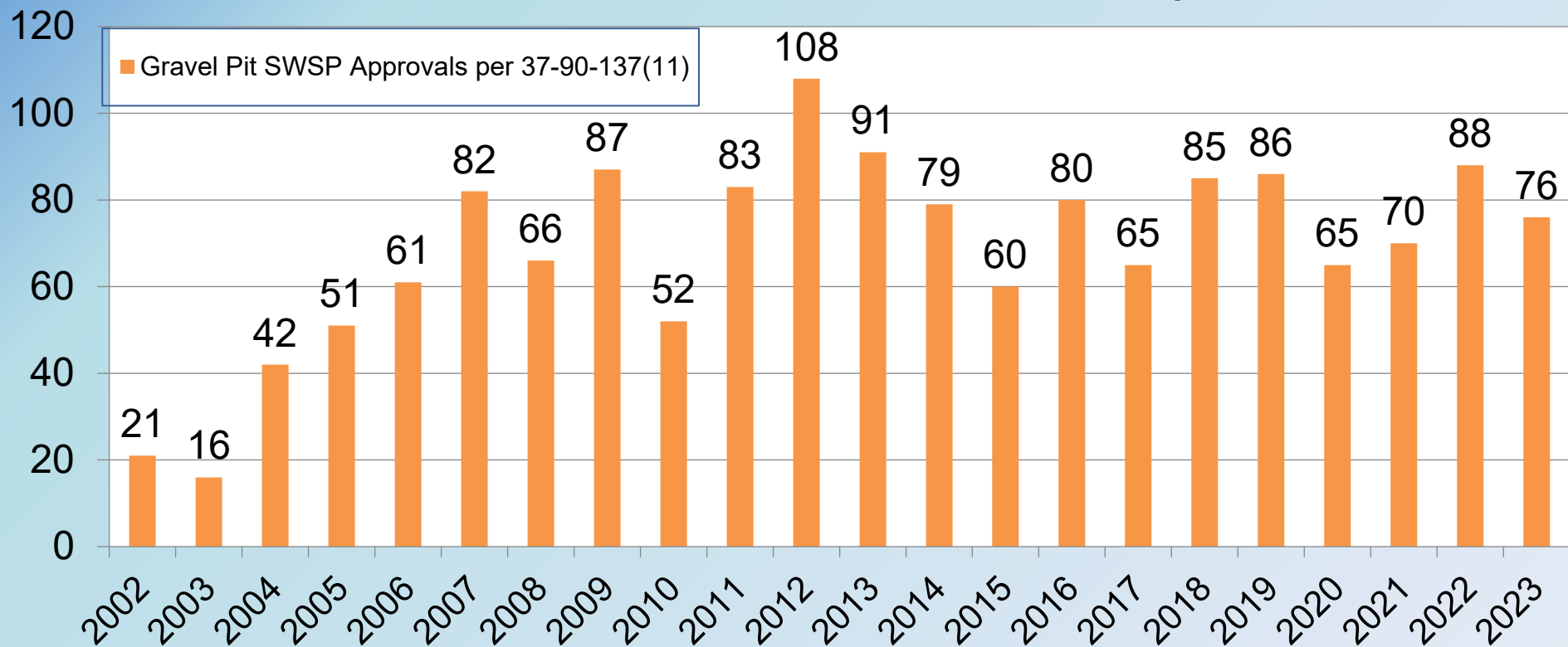
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SWSP Activity



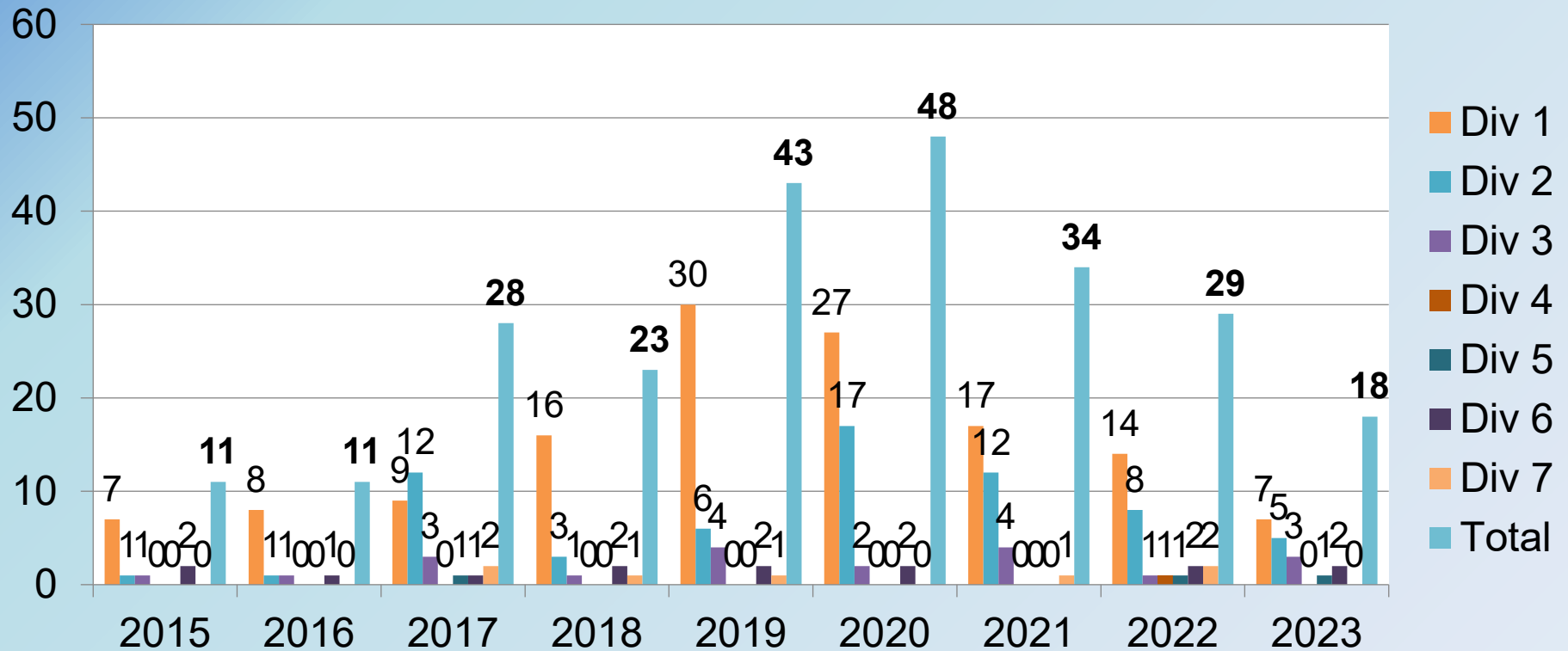
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Gravel Pit SWSP Activity



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Resume Review –Statements of Opposition



Water Supply Activities - eForms

- Launched the eForm for Notice of Intent to Construct Monitoring Holes or Dewatering Wells (also Test Holes Penetrating Through a Confining Layer) on May 1, 2023.
- Stopped accepting the GWS-51 (Notice of Intent to Construct Monitoring Hole) and GWS-62 (Notice of Intent to Construct Dewatering Well) on June 30, 2023.
- Received nearly 700 Notice of Intent eForm submittals from May 1, 2023 through December 31, 2023.

Notice of Intent to Construct Monitoring Holes or Dewatering Wells (also Test Holes Penetrating Through a Confining Layer)	Provide notice of intent (NOI) to construct monitoring holes or dewatering wells (also test holes that penetrate a confining layer) as described by Rule 6.3 of the Water Well Construction Rules, 2CCR 402-2. For additional information, see the Guide to Notice of Intent , or submit questions using Ask DWR . (WP/DBB). (This form replaces forms GWS-51 and GWS-62.)	FILE ONLINE
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South Platte River Basin Water Division 1

There were 28 days of South Platte Compact calls during the 2023 Irrigation Year, which is a significant decrease in comparison to the 165 number of days recorded in Irrigation Year 2022.

The South Platte Well Team continued its work with approximately 6,500 wells that fall within the scope of the South Platte Measurement Rules. The Team processed approximately 18,900 meter readings and published diversion records for 1,700 wells. The Team also conducted 50 installed flow meter verification field tests, processing 998 submitted measurement tests into DWR's database. Field inventory of approximately 1,567 wells and inspection for compliance of 253 wells filed as inactive in accordance with the Measurement Rules were also conducted. The well team certified 7 new well meter testers and recertified 13 certified well meter testers.

The Republican River well team has been busy assisting the Designated Basins Team in the administration of well permit volume limits by investigating dozens of wells and posting and documenting Orders on 2 wells that exceeded their annual limitation in the 2023 Irrigation Year. These Orders are being administered by the Designated Basins Team in Denver, and require the reduction of the annual pumping limits for the 2024 Irrigation Year by the amount over-pumped in 2023.



Moffat Tunnel Outlet
Photo by Russel Stroud



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Arkansas River Basin Water Division No. 2

Initially the water supply conditions in 2023 were projected and considered to be an average year within the Arkansas River basin and was considered a “Dry” year in the year-type calculations used in the basin for the 1950 period forward. In order to compare years for water supply conditions in the larger mainstem 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 2023. Using this criteria, 2023 ranked as the thirtieth lowest flow rate year in the 74 year period.

The final report for the period November 15, 2022 through March 14, 2023 showed a system grand total of 85,195.88 acre-feet which was 7,028 acre-feet or 8.0% less than was stored in the previous year and 31,580.12 acre-feet or 27.1% less than the previous 20-year average.

During 2023 the irrigation well pumping represented in the H-I Model totaled 41,387 acre-feet. For User Groups 1-14 (above John Martin Reservoir Area) the total pumping was 28,843 acre-feet and for User Groups 15-24 (below John Martin Reservoir) the total pumping was 12,544 acre-feet

15 new augmentation plans were decreed during 2023, bringing the total to 797 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 2023, the unconfined aquifer of the Closed Basin saw a slight improvement in its amount of storage; however, the aquifer is currently at a significantly lower level than it was when Subdistrict No. 1 began its first year of operation in 2012.

Water year 2023 saw a near average snowpack that peaked at 110% of average.

Rivers and streams on the west side of the San Luis Valley, coming out of the San Juan Mountain Range, fared the best with annual streamflows ranging from 110 to 130 percent of normal, while the eastern streams coming out of the Sangre de Cristo Mountain Range had annual streamflows around 75 to 89 percent of normal for 2023. The streams in the northern portion of the valley were near normal.

Actual water delivery at the state line was very close to compact obligations, resulting in an end of the year debit of 1,100 acre-feet for Colorado, compared to the 200 acre-feet credit from water year 2022.





The Gunnison River Basin Water Division No. 4

2022 snowpack conditions peaked at 165% basin-wide, due to regular winter storms from December 2022 to April 2023. This resulted in spring runoff far above normal.

Inflow to the Aspinall Unit (Blue Mesa, Morrow Point and Crystal Reservoirs) as of May 15, 2023 was 125% of the 30-year median seasonal average, categorizing the season as a “Average Wet” year.

Water supply conditions were suffering on the Grand Mesa since 2019 but turned around in 2023 with record runoff (263% of normal) in the Surface Creek basin.

188 total permits were issued during 2023 (down from 296 in 2022).



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 2023 water year began with storage in the basin's major reservoirs at about 66,000 acre-feet less than median, and ended with slightly above average storage at about 23,000 acre-feet more than median.

The 2023 water year ended with gaged flow for the Colorado River near Cameo ranking as the 26th wettest year in 90 years of record. The flow for the Colorado River near Dotsero ranked as the 33rd wettest in 82 years of record.

Colorado River Water Conservation District entered into a purchase agreement with Xcel Energy on 12/19/2023



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The Yampa and White River Basins

Water Division No. 6



Gardner Park Reservoir, Photo by Lauren Berrien, Engineering Technician

In 2023, peak snow water equivalent (SWE) in the Yampa-White-Little Snake basins peaked on April 7 at 30.1 inches; while the median SWE based on the period 1991 through 2020 is 20.2 inches with the median peak occurring on April 8.

Peak SWE in the Laramie-North Platte basins peaked on April 8 at 29.3 inches; while the median SWE based on the period 1991 through 2020 is 23.3 inches with the median peak occurring on April 25.

The Yampa River did not go on call as in 2021. Calls did occur throughout Division 6 during 2023 and the complete list of calls can be found on the Decision Support System (CDSS) website.

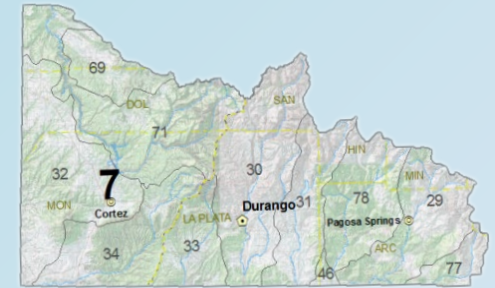
In irrigation year 2023, 214 well permits were issued. Of this number, 19 were monitoring hole notices, 27 were for monitoring/observation wells, 1 was for dewatering wells, and 167 were for production wells or groundwater ponds.



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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 2022-2023 (Water Year 2023) was excellent, approaching the maximum recorded snow water equivalent for the San Miguel-Dolores-Animas-San Juan drainage basin.

There were 84 administrative calls placed on 12 different stream systems during the year.

236 well permits were issued. Of those, 166 were residential well permits, 12 were general purpose well permits, two geoexchange system loops, one dewatering well, 52 monitoring/observation wells, and two rooftop precipitation collection systems were permitted.

New Mexico placed a call on June 14 for half the flow as measured at the La Plata River at Hesperus gage, up to a maximum of 75 c.f.s.

Long Hollow Reservoir, with a capacity of 5,300 a.f. contained 0 a.f. at the start of the water year. It filled to 2,740 a.f. on March 17 and dropped to a low of 1,119 a.f. at the end of the water year.



Monsoon rains South of Hesperus, photo by Shannon Manfredi



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Snake River, Water District 36, Photo by Matt Weisbrod

Colorado's Decision Support Systems (CDSS) Site

CDSS Data & Tools

dwr.state.co.us/tools

Apps ICCES Project Scree... Suggested Sites Imported From IE Water Law Researc... University of Denve... CBA The Colorado Bar View from the Gran... The Bluebook - Blu... Integrated Colorad... Colorado Judicial Br... Water Transfers and... Toolkit Videos and...

 **COLORADO'S**
Decision Support Systems
CWCB / DWR

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CDSS Data & Tools Help

Administrative Calls
Active, Historical & Analysis Tools

Groundwater
Water Levels & Geophysical Logs

Water Rights
Decree Details, Court Docs, Net Amounts

Aquifer Determination
Denver Basin & Dakota/Cheyenne

Location Tools
Coordinates & Distance Calculators

Climate Stations
Temperature, Precipitation, Snow, Etc

Stations
Current Conditions & Historical Data

Well Permits
Application History & Well Details

Call Analysis Tools
Structure and Water Source Analysis

My Stations
Station Lists and Alerts

Dam Safety
Dams, Livestock Water, Erosion Control

Structures
Diversion Records & Other Details

Map Viewer
DWR Online GIS Products

Information Marketplace
DWR Data on "CIM" Platform

REST Web Services
GET CDSS Data Programmatically

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For detailed field office and branch reports please visit imaged documents,
Publications and Reports
at: <https://dwr.colorado.gov/>



Munroe Diversion Structure, photo by David Bridge