

# Division 2 Annual Report 2018

Department of Natural  
Resources  
Division of Water Resources  
Division 2



April 17, 2019



**COLORADO**  
Division of Water Resources  
Department of Natural Resources



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This document is provided as an executive summary report of activities and accomplishments of Division 2 personnel during 2018 in partial fulfillment of the requirements of CRS 37-80-105.

This report is notable in that it represents the first report not provided by Steve Witte as the Division Engineer for Division 2 in almost thirty years. Steve celebrated his 40th year with Division of Water Resources and 30th year as Division Engineer and retired as of June 30, 2018. Thank you for the opportunity to have succeeded Steve as Division Engineer beginning on July 1, 2018. My step up into the Division Engineer position came just after the end of 22 years of service to Division of Water Resources, most of which was as an Assistant Division Engineer in Division 2.

I have attempted to carry on the great tradition Steve had for providing an illuminating report on the events and environment that characterized Division of Water Resources work in 2018 in the Arkansas River Basin.

Special thanks and recognition is due for the many Division 2 employees who helped compile the key information in this report and to all of the Division 2 employees who managed to maintain a highly productive work level through the key change in leadership.

Appreciation is also expressed to key individuals in various sections of the report that discuss their meritorious work to accomplish significant outcomes during 2018.

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Bill W. Tyner, P.E.  
Division Engineer

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4/17/19

Date

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**CONTENTS**

1	2018 Water Supply and Administration Operations	4
1.1	Water supply indicators	4
1.1.1	US Drought Monitor	4
1.1.2	Snow Pack	6
1.1.3	Precipitation and Streamflow	6
1.2	Administration Activities	10
1.2.1	Pueblo Winter Water Storage Program	10
1.2.2	Transmountain Diversions	11
1.2.3	Surface Water Administration	11
1.2.4	Ground Water Administration	13
1.2.5	Water Court Activity	14
	2018 caseload summary:	14
1.2.5.1	Lake Meredith Reservoir (Enforcement) 17CW3044	15
1.2.5.2	Casas Limited Partnership (Enforcement) 17CW3038	15
1.2.5.3	City of Walsenburg 17CW3063	15
1.2.5.4	Pueblo Water (Change of Water Rights) 17CW3050	15
1.2.6	Administration of Decreed Plans for Augmentation	16
1.2.7	Cannabis Administration / Enforcement	18
1.3	Operations	20
1.4	Compact Compliance	20
1.4.1	Post Compact Wells	20
1.4.2	Surface Water Irrigation Improvements	21
1.5	Special Engineering Committee	22
2	Problems Solved	23
2.1	Infrastructure Improvement/ Futile call model (Update)	23
3	Community Involvement	24
3.1	Spring Fire Community Support - Huerfano County	24
4	Highlights of 2018	25
4.1	Enforcement Cucharas #5: Before and After	25
4.2	Highland Canal Approved as Permanent Pool Source: Update	27
4.3	Arkansas Decision Support System (Update)	28
5	Organizational Changes	30

## 1 2018 Water Supply and Administration Operations

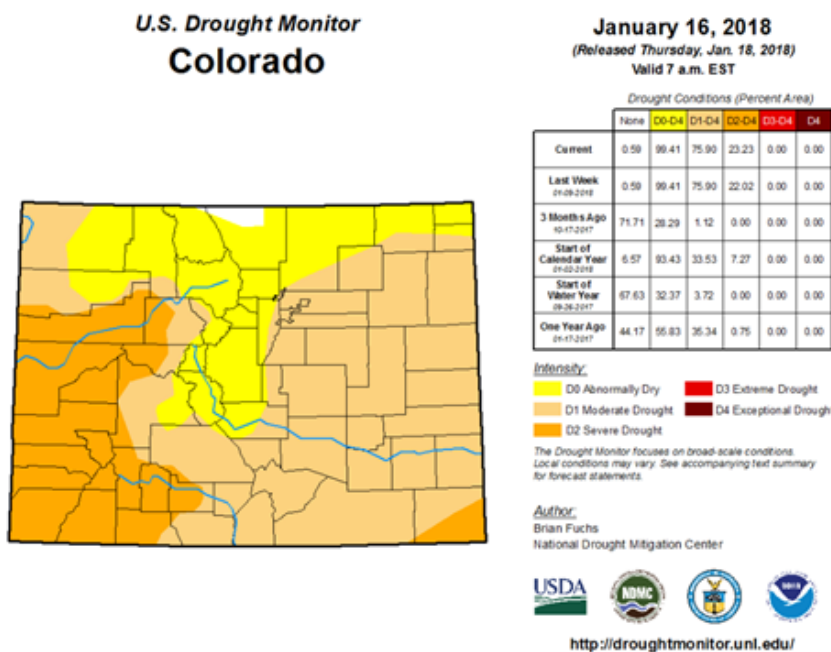
Water supply conditions in 2018 were particularly poor within the Arkansas River basin, especially in the portions of the basin west of Interstate 25 in Lake, Chaffee, Park, Fremont, Custer, Huerfano and Las Animas counties and in the western portion of El Paso and Pueblo counties. A saving grace for some of the larger water rights in the basin was a good supply of stored water in the major reservoirs.

### 1.1 Water supply indicators

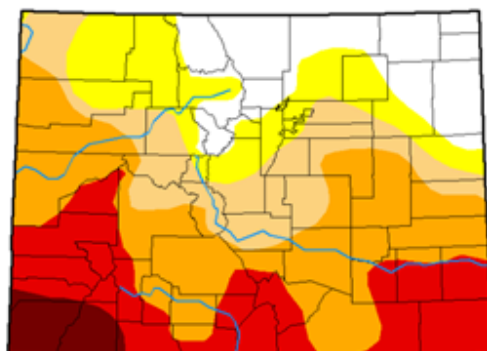
The benefits of the particularly wet 2017 that enabled Southeastern Colorado to enjoy its temporary reprieve from Extreme Drought began to disappear by the end of January and drought had returned with gusto by mid-April. The drought continued to progress through the irrigation season and provided little relief throughout the monsoon season. Conditions remained surprisingly stagnant and in various states of drought for the remainder of the year with the epicenter of the drought stationed firmly over Southwest Colorado as shown in Figure 1, below with some portions in the southwest part of the Arkansas Basin also experiencing extreme or exceptional drought. As will be seen later, the snowpack was below “normal” for the basin as a whole, and portions of the basin (southern mountains) had very little snowpack, and extreme drought returned as a consequence of very limited and spotty precipitation during the post-runoff period.

#### 1.1.1 U.S. Drought Monitor

Figure 1: Comparison of January 2018 to April and October 2018 Drought Conditions



### U.S. Drought Monitor Colorado



**April 17, 2018**

(Released Thursday, Apr. 19, 2018)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	15.74	84.26	69.17	53.65	24.42	3.87
Last Week 04-10-2018	12.38	87.62	69.43	53.65	24.31	0.00
3 Months Ago 01-18-2018	0.59	99.41	75.90	23.23	0.00	0.00
Start of Calendar Year 01-01-2018	6.57	93.43	33.53	7.27	0.00	0.00
Start of Water Year 09-30-2017	67.63	32.37	3.72	0.00	0.00	0.00
One Year Ago 04-18-2017	46.01	53.99	11.88	0.00	0.00	0.00

**Intensity:**

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

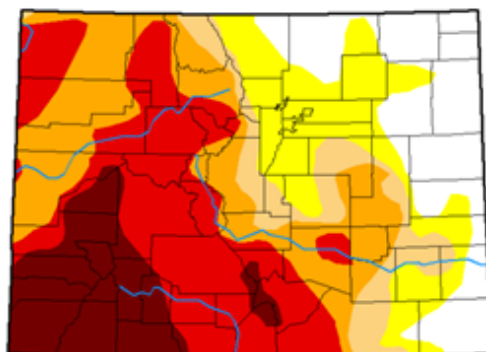
**Author:**

Brad Rippey  
U.S. Department of Agriculture



<http://droughtmonitor.unl.edu/>

### U.S. Drought Monitor Colorado



**October 23, 2018**

(Released Thursday, Oct. 25, 2018)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	16.64	83.36	67.83	59.23	39.09	13.64
Last Week 10-16-2018	16.64	83.36	67.83	59.23	39.09	13.64
3 Months Ago 07-24-2018	17.85	82.15	76.64	60.82	39.72	10.20
Start of Calendar Year 01-01-2018	6.57	93.43	33.53	7.27	0.00	0.00
Start of Water Year 09-30-2017	14.19	85.81	72.30	64.41	40.47	16.21
One Year Ago 10-24-2017	71.57	28.43	1.12	0.00	0.00	0.00

**Intensity:**

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
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The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**

Eric Luebbehusen  
U.S. Department of Agriculture

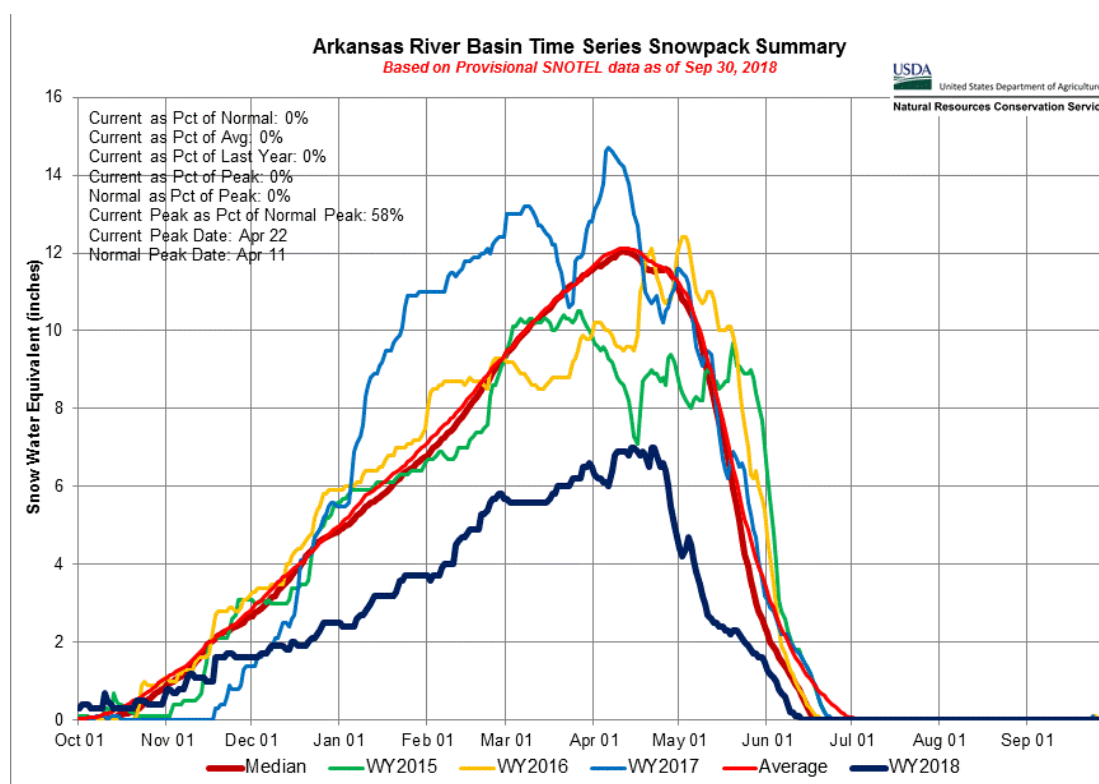


<http://droughtmonitor.unl.edu/>

### 1.1.2 Snow Pack

Inspection of the Snow Water Equivalent (snow pack) plot developed by the NRCS, reproduced herein as Figure 2 shows that by the start of the runoff, the snowpack was significantly below normal and remained that way through the duration of the runoff season.

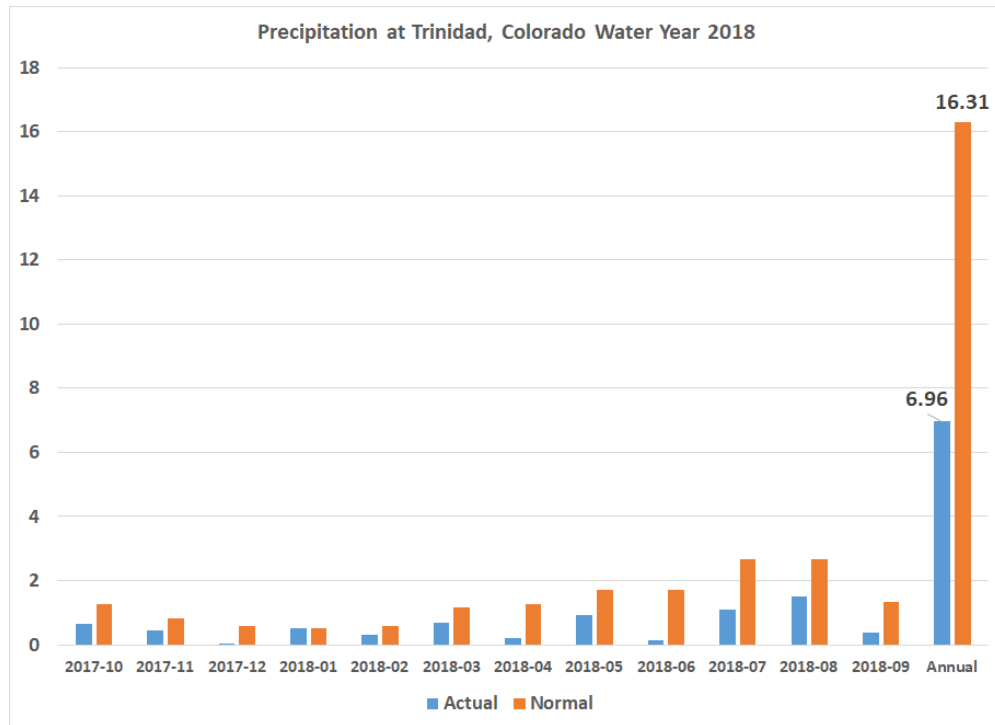
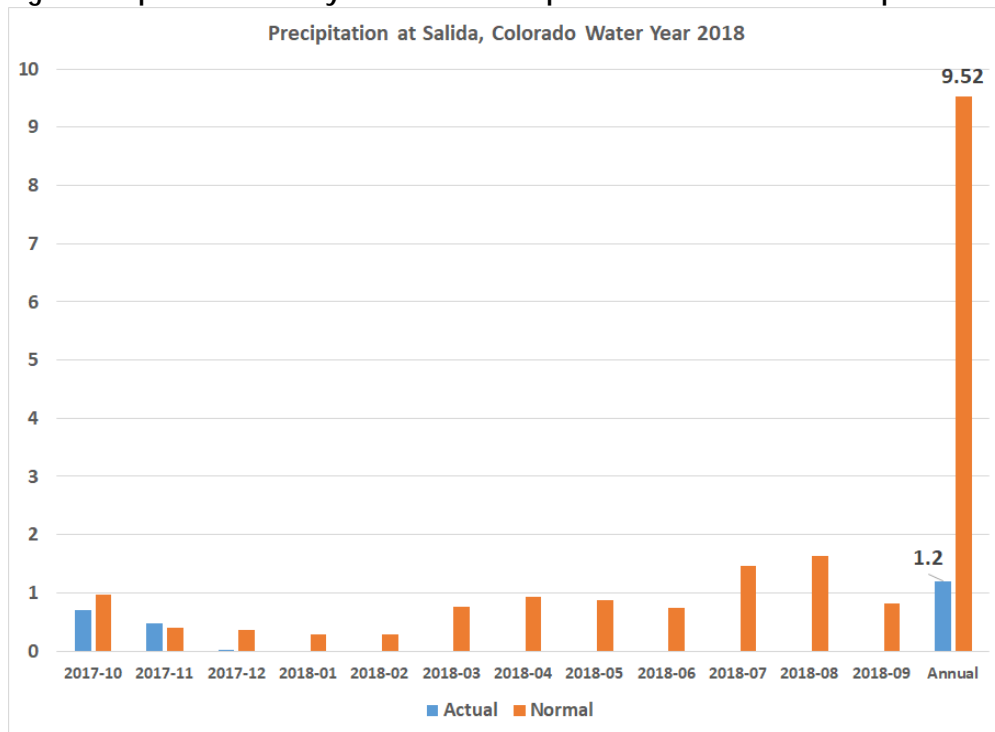
Figure 2: Snow Water Equivalent Time Series for the Arkansas Basin 2017-18



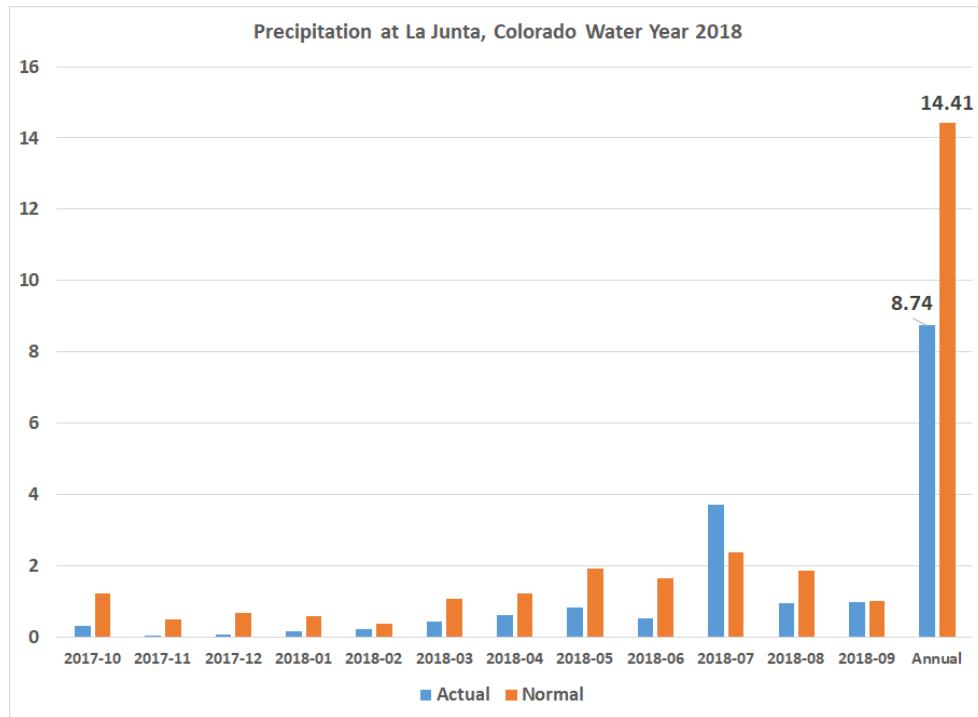
### 1.1.3 Precipitation and Streamflow

To illustrate the stark difference between the western portion of the Arkansas River Basin and the eastern portion, precipitation values are graphed for Salida, Trinidad and La Junta Colorado below. In Salida, there was no measurable precipitation during the water year after December 2017. The average annual precipitation in Salida is normally low at less than 10 inches (9.52), however, Water Year 2018 was extremely low at only 1.2 inches. In Trinidad, the annual precipitation was only 43% of normal (6.96 inches versus 16.31 inches) and in La Junta annual precipitation was only 61% of normal (8.74 inches versus 14.41 inches).

Figure 3: Average Precipitation at Key Locations compared to Measured Precipitation 2018







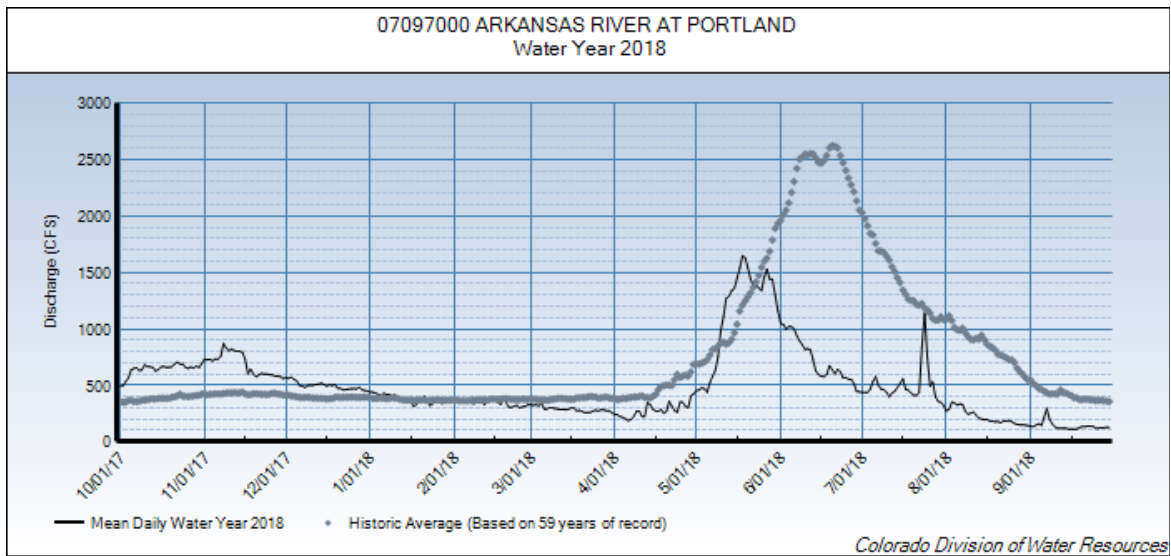
Streamflow, as a result of the lack of precipitation, was impaired as would be expected, however the flows through the upper basin still benefited by operation of the Voluntary Flow Management Program wherein the Bureau of Reclamation and Southeastern Colorado Water Conservancy District, Colorado Springs Utilities, Pueblo Water and Aurora all participated to supplement streamflow through portions of the peak rafting season and to support critical fish habitat flows outside that season.





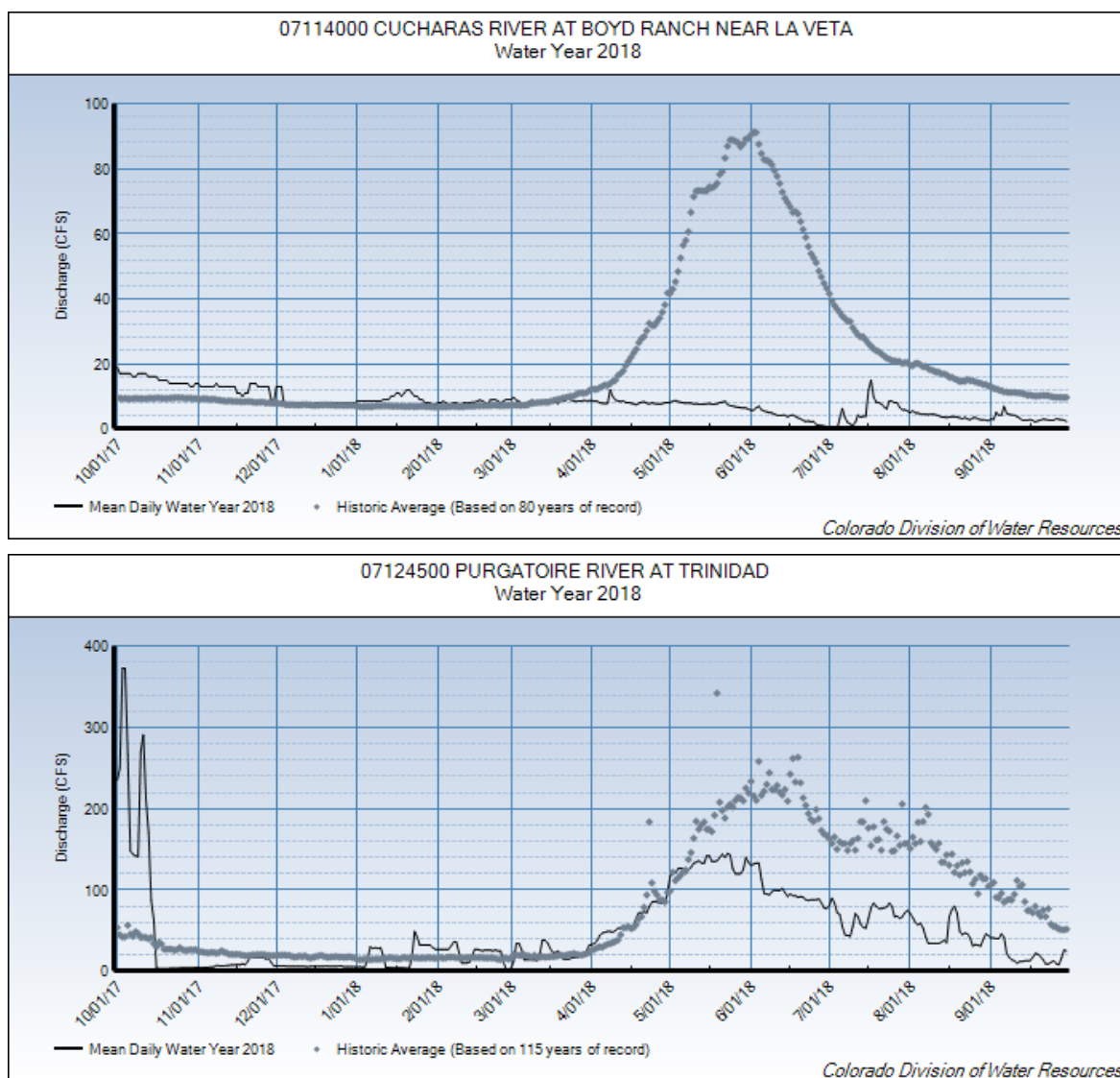


Figure 4: Average Stream flow at Portland compared to 2018 Stream flow



Streamflow in other portions of the basin was even more severely impaired by drought conditions. Note the contrast in the graphs below for the Cucharas River at Boyd Ranch above the Town of La Veta, Colorado and the Purgatoire River at Trinidad, Colorado.

Figure 5: Average Stream flow compared to 2018 Stream flow Cucharas and Purgatoire



## 1.2 Administration Activities

### 1.2.1 Pueblo Winter Water Storage Program

The final report for the period November 15, 2018 through March 14, 2019 showed a system grand total of 100,072 acre-feet which was 30,889 acre-feet or 23.6% less than was stored in the previous year and 33,104 acre-feet or 24.9% less than the previous 20-year average.

One of the terms and conditions of the decree entered in 84CW179, which approved of the Winter Water Storage Program, is that the conservation storage in John Martin

Reservoir is to be monitored to ensure that over time, the program does not have an adverse effect on Compact storage in John Martin Reservoir. During the winter of 2018-19, a total of 28,933 acre-feet was accumulated in John Martin Reservoir as conservation storage prior to March 15, 2019. This was 11,123 acre-feet or 38.44% more than the amount stored during the period 1950 - 1975, and 23,144 acre-feet less than last year.

Colorado and Kansas continue to discuss the possibility of documenting the procedures that have been used to allocate the inflow to John Martin as measured at Las Animas, Colorado between conservation storage and water to be stored pursuant to Section III of the 1980 Operating Resolution.

### 1.2.2 Transmountain Diversions

Table 1: WY 2018 Transmountain Water Imported to Division 2

RECIPIENT				
DIV/WD	DIVERSION STRUCTURE	STREAM	ACRE-FT	STREAM
2/11	COLUMBINE DITCH	ARKANSAS RIVER	1,320	EAGLE RIVER
2/11	EWING DITCH	TENNESSEE CREEK	524	EAGLE RIVER
2/11	WURTZ DITCH	TENNESSEE CREEK	1,380	EAGLE RIVER
2/11	HOMESTAKE TUNNEL	LAKE FORK CREEK	19,430	EAGLE RIVER
2/11	BOUSTEAD TUNNEL	LAKE FORK CREEK	40,930	FRYINGPAN RIVER
2/11	BUSK-IVANHOE TUNNEL	LAKE FORK CREEK	1,550	FRYINGPAN RIVER
2/11	TWIN LAKES TUNNEL	LAKE CREEK	31,070	ROARING FORK RIVER
2/11	LARKSPUR DITCH	PONCHA CREEK	100	TOMICHI CREEK
2/79	HUDSON DITCH	HUERFANO RIVER	56	MEDANO CREEK
2/79	MEDANO DITCH	HUERFANO RIVER	159	MEDANO CREEK
2/10	BLUE RIVER PIPELINE	FOUNTAIN CREEK	9,265	BLUE RIVER
	TOTAL:		105,784	

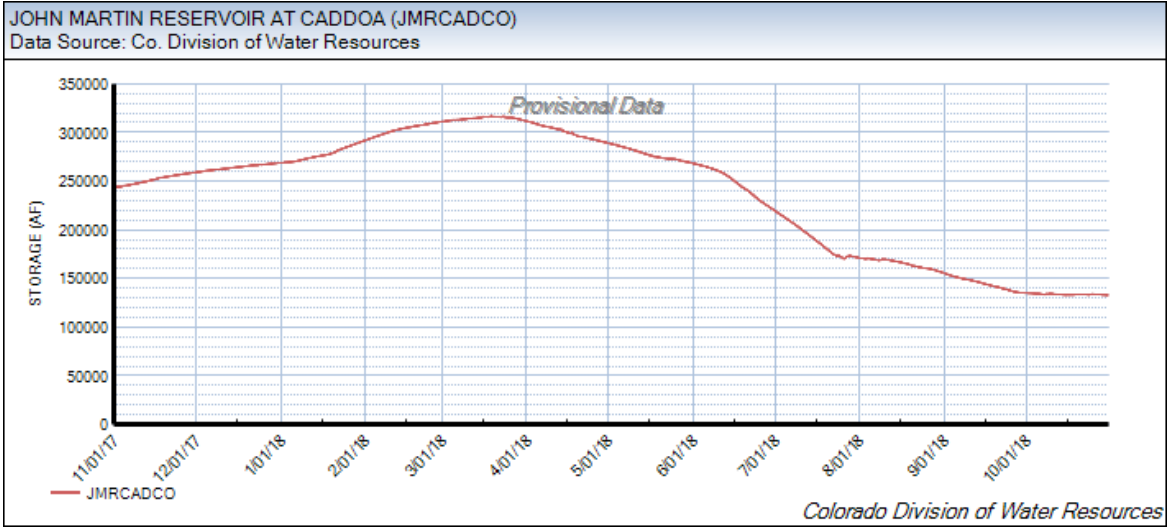
The Fryingpan-Arkansas Project reported that their imports of transmountain water in 2018 were 70% of average. Original projections for imports were considerably higher, however an unfavorable runoff from the collection system and lack of precipitation during the runoff period on the west slope resulted in much lower than expected imports. Other transmountain imports were similarly lower than average.

### 1.2.3 Surface Water Administration

Below average snowpack, followed by well below average rainfall and low imports combined for a low water supply in the Arkansas River Basin in 2018, and critically low in some portions of the basin (particularly west of Pueblo and in the southern

tributaries). Reservoir storage from previous wet years remained strong and mitigated some of the impacts of low snowmelt runoff and lower precipitation. John Martin Reservoir, for example, saw a substantial amount of storage during the 2017-18 winter months with a peak daily storage amount of 316,491 acre-feet on March 19, 2018. Storage content at the end of the irrigation season in John Martin Reservoir was 133,063 acre-feet.

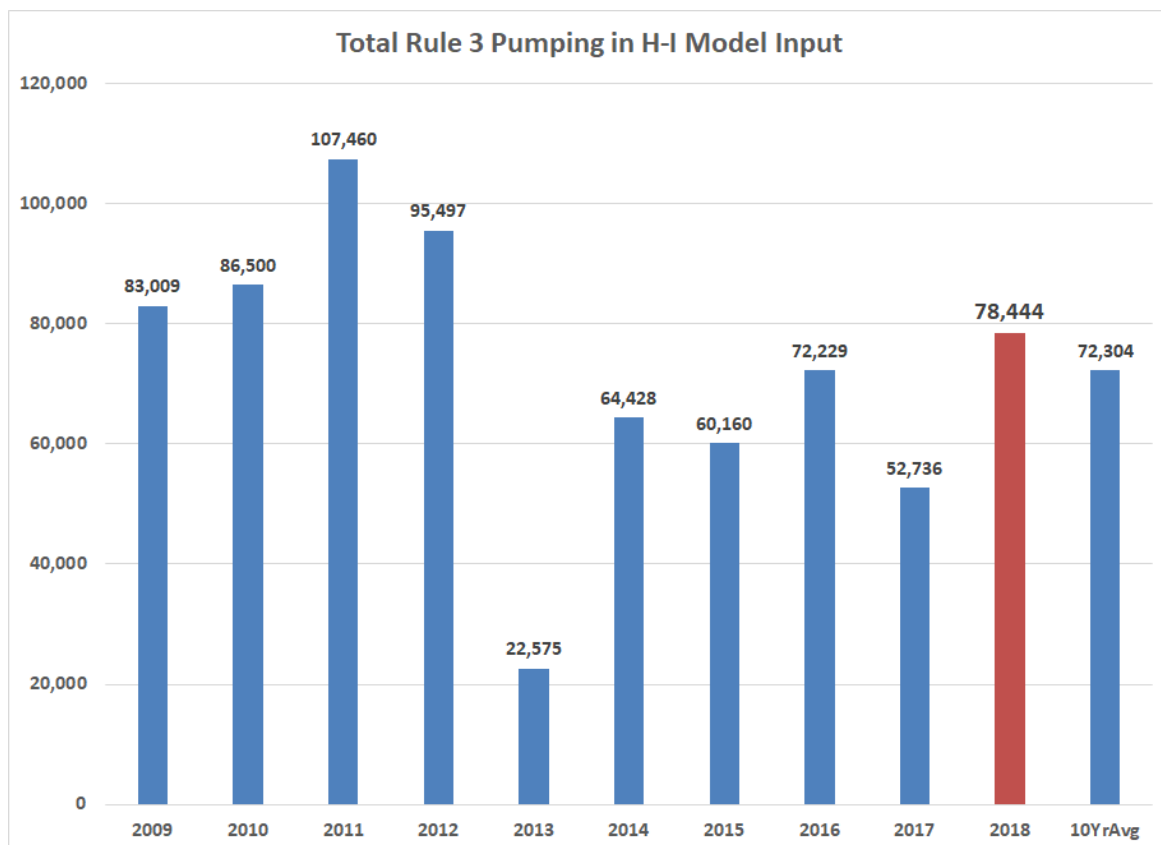
Figure 6: Storage Content John Martin Reservoir CY 17 - 18



### 1.2.4 Ground Water Administration

Overall irrigation well pumping in 2018 was above average for the past ten-year period (Irrigation well pumping in the lower mainstem area was 78,444 acre-feet versus the ten-year average of 72,304 acre-feet).

Figure 7: Irrigation Well Pumping - Ten Year Comparison



For 2018 supplemental flood Rule 3 irrigation wells were assigned 36% presumptive depletion factors pursuant to Appendix A.4 of the Decree in Kansas v. Colorado. Rule 3 irrigation pumping delivered to fields via flood and furrow irrigation was assessed the 50% presumptive depletion factor unless flood irrigation of dry-up lands occurred under a Rule 6 temporary change of water rights. In this circumstance the presumptive depletion factor was increased to 65% for flood and furrow irrigation. Rule 3 irrigation wells supplying sprinkler systems were assigned a 75% presumptive depletion factor except for those wells irrigating dry-up lands per Rule 6 temporary change of water rights. Under this circumstance the depletion factor was set at 85%. Rule 3 irrigation wells supplying drip irrigation systems were assigned a 100% depletion factor.

The 2018 calendar year actual pumping and stream depletions for AGUA, CWPDA and LAWMA were as follows:

Table 2:

	Actual 2018 Calendar Year Pumping (AF)	Actual 2018 Calendar Year Rule 3 Irrigation Pumping (AF)	Actual 2018 Calendar Year Stream Depletions (AF)
AGUA	6,193	4,788	3,222
CWPDA	41,876	34,873	21,763
LAWMA	38,629	35,924	25,150
TOTALS	86,698	75,585	50,135

Tabulations of the actual stream depletions and replacements for the three largest well associations as well as stream depletions for post-1985 depletions are included in the Annual Report to Kansas on the Operation of Rule 14 Replacement Plans for H-I Model Year 2018.

### 1.2.5 Water Court Activity

#### 2018 caseload summary:

- 93 new cases were filed.
- 3 Statement of Oppositions were filed down from 6 filed in 2017
  - 18CW0002 Hartman - Change of Water Right and Amended Plan for Augmentation
  - 18CW3072 Lower Arkansas Water Management Association - Plan for Augmentation
  - 18CW3076 Upper Arkansas Water Conservancy District - Plan for Augmentation, Change of Water Rights, and Appropriative Rights of Exchange
- 1 Motion to Intervene
  - 16CW3103 Pueblo Board of Water Works - Determined that all Non-Speculation Issues will be tried and determined in Case No. 16CW3103, the Exchange Case and all opposers in 17CW3050 may intervene in this case.
- 3 cases we were parties to were decreed.
- 13 cases we are parties to remain un-decreed
- In 2018 26 cases remain un-decreed.

**1.2.5.1 Lake Meredith Reservoir (Enforcement) 17CW3044**

The Lake Meredith Company (Company) filed a Complaint for Declaratory Judgment in August 2017 against the State and Division Engineer (Engineers) for action taken under an enforcement order issued by the Division Engineer in 2016 which required the Company to release water that was alleged to be out-of-priority storage. Over the next few years there were a series of motions and responses filed with the court by each party. The Engineers' motion for Summary Judgment and dismissal of the complaint was upheld in an Order of the Court dated March 2019. An appeal may potentially occur.

**1.2.5.2 Casas Limited Partnership (Enforcement) 17CW3038**

This case involved an enforcement action taken in response to failure to comply with an Order of the Division Engineer to either properly augment or drain two large ponds in El Paso County. The order was sent in December 2016. This case was unusual in that part of the dispute was that the Defendant had contracted for augmentation of ongoing evaporation from the ponds, but had never augmented for the initial fill of the ponds. The Defendant entered into a contractual dispute involving the civil contract dispute, but did nothing to remedy the Division Engineer's order. A hearing was heard for the case in July 2018 and a preliminary injunction was granted on behalf of the Engineers. The Defendants were required to drain the ponds. The court most recently ordered that the Defendants pay a civil penalty of \$92,000 for 460 days of violation at \$200 per day.

**1.2.5.3 City of Walsenburg 17CW3063**

The City of Walsenburg is applying for Appropriative Rights of Exchange, Approval of Intersystem Substitution, and Quantification of Reusable Return Flows. An interesting point we do not see in decrees is "Intersystem Substitution", also named in their proposed decree as "Reservoir Substitution", "bookover", and "trade". All referring to the transfer of water not by physical means but instead by accounting.

**1.2.5.4 Pueblo Water (Change of Water Rights) 17CW3050**

This case involved the change of water right of 5,541 shares in the Bessemer Ditch (out of 19,739 shares or about 28%) from irrigation to multiple uses including primarily municipal and augmentation uses. This change application drew 25 statements of opposition. The management of the case was very productive and the State and Division Engineers were able to resolve their issues with the decree and engineering and have stipulated in the case. The case is nearing completion.



### 1.2.6 Administration of Decreed Plans for Augmentation

Forty-nine new augmentation plans were decreed in 2018, with the current total number of decreed plans shown here:

Table 3:

WD	2016	2017	2018
10	285	340	379
11	116	127	129
12	38	48	51
13	30	30	31
14	15	34	34
15	13	13	13
16	20	28	28
17	9	15	19
18	0	1	1
19	10	14	14
67	18	19	19
79	2	2	2
Total	556	671	720

District 10: Of the 379 Augmentation Plans in Water District 10, 259 of them are subdivision augmentation plans utilizing individual on lot wells in the Denver Basin Aquifers with replacements made with septic returns. However, the successful utilization of this non-renewable resource depends on the active administration of these plans to prevent over pumping as these plans only allow for a finite pumping life (typically between 100 and 300 years at their maximum pumping rates) before pumping must cease and post pumping replacements begin, absent a return to water court to identify a new source of water. **These subdivisions are cooperative in providing annual, biannual or monthly diversion records to the Water Commissioner with a reporting rate in 2018 of 100%.** The District 10 Water Commissioner (Deputy) is also responsible for working with these plans to bring them into compliance for failure to report or for over pumping. Over pumping is often the result of broken infrastructure such as malfunctioning backflow preventers, sand filters or sprinkler systems and can often easily be identified and corrected. Otherwise, excess pumping is often attributed to an expansion of decreed limitations such as excess outdoor irrigation, in which case the Water Commissioner works with homeowners to return to operations within their decreed limitations. The remaining 120 plans for augmentation in District 10 are heavily municipal or small individual well augmentation plans that are outside the Denver Basin and are also administered by the District 10 Water Commissioner. **These plans for augmentation also report 100% and the records are primarily maintained through automated methods.** They operate primarily by utilizing replacement sources generated from historical consumptive use generated from changed surface ditch shares.

In Districts 11, 12 and 13, effort continues to increase obtaining use reports from individual on-lot wells. There is a high turnover in property and a large population of part-time occupancy. Many owners believe their private well is not subject to any type of regulation. There are still some that have not installed flow meters. The attempt to

educate these individuals of state statutes pertaining to water administration, as well as the terms and conditions of the court decrees and permit conditions is ongoing.

Last year 747 emails, and letters were sent out to property owners in March and October requesting meter readings and use reports, with 507 responding, a 68% overall response rate. Of those 747 contacts, 340 were email contacts of which 248 responded, a 73% response rate. Emphasis continues this year on obtaining email addresses from all well owners contacted in order to reduce the expense of mailing reporting forms. While only a handful reported that they have no computer or email, many more reported by mail without comment, however, owners provided their email addresses for future contact via email. This effort is believed to be more efficient and will be continued in 2019

A new filing and compiling process was implemented this year, utilizing the shared Google Drive as the means to compile contact information and pumping data supplied by the well users, as well as to perform some of the accounting. Files are now set up on shared drives for all water districts, but are most useful where there are large subdivisions with on-lot wells in an augmentation plan.

In order to determine annual uses for published diversion records we estimate a diversion amount for the entire subdivision by using the available actual uses, as reported, and adding the maximum decreed amounts for those lots or wells where actual uses are not known. So, the actual user supplied data is integrated in the annual diversion record and seems to reduce the replacement obligation in some cases.

Again in 2018 the replacement water made available to the 97 plans via the Independence Pass Transmountain Diversion System managed by the Twin Lakes Reservoir and Canal Company ran short and a native for fully consumable water swap was made with Pueblo Board of Water Works to keep the accounts replacement source balance whole. In 2018 adjustments to the method in which the SEO account handles native water were deployed in hopes of more accurately managing this account in 2019, which has so far been successful.

### 1.2.7 Cannabis Administration / Enforcement

In 2018 water administration related to the cannabis industry continued through three main areas of administration. The first area is the continued efforts to coordinate new applications to grow marijuana with local licensing authorities and to continue to work with existing operations to receive diversion records and properly account for depletions and replacements. The second area is with respect to enforcement on unlicensed operations that are supplied primarily by exempt domestic wells. The third is related to the DWR response to recent legislative changes in industrial hemp.

Division 2 efforts to work in cooperation with Pueblo County are ongoing and considered to be a highly successful part of the cannabis administration program in the Arkansas River Basin. Where possible and applicable a similar system of reviewing and coordinating with the local licensing authority is now in place in other counties besides Pueblo County in Division 2 and even in other Divisions. The constant stream of participants seeking to have their water source verified continues and shows very little signs of slowing down.

In the past several years a significant amount of time and resources have been dedicated to responding to water user complaints submitted to our office that are related to unlicensed grow operations. Many of these operations are established on parcels of 35 acres or more and located in the outer, more unpopulated areas of the Division. These parcels often have existing Household Use Only, or Exempt domestic wells and are converted into the supply for cannabis cultivation facilities. These types of wells are allowed to operate with the presumption of non-injury under Section 37-92-602 C.R.S. However, they are granted the presumption of non-injury based on operating pursuant to their permitted uses. A cannabis operation is not considered within the purview of the permitted uses and therefore enforcement actions in response to the complaints are enacted upon in order to bring these structures into compliance with their permitted uses. This process requires a significant investment of Division resources for what can result in very limited injury to Senior water rights.

Finally, in December 2018 the Agriculture Improvement Act, also known as the "Farm Bill" was signed by President Trump. This legislation was significant for the cannabis industry in that it was reported to have "legalized hemp" on a national level. Unfortunately, however, that has not been the actual result of the legislation. Much confusion remains on policy to implement the Federal policies surrounding hemp production especially with respect to Federal Projects and Federal Facilities that provide water supplies to agriculture such as the Frying Pan-Arkansas Project. However, a significant increase in interest in growing hemp in the Arkansas River basin has been noted and efforts continue to help growers do so in a manner that is consistent with Colorado Water Law.

The cannabis industry continues to affect water administration in Division 2. As a result of the efforts invested by Division 2 staff towards cannabis administration, efforts to track the time and resources associated with this effort have shown an increase in the number of Division 2 work hours for this area from zero time in 2013 to 2139.92 hours in 2017 with approximately \$101,541.95 expended.

Figure 8: Sansal Hemp Cultivation Near Siloam Road, Pueblo County, Colorado



## Compact Issues

### 1.3 Operations

The following is a summary of the operation of John Martin Reservoir for the 2018 compact year. During the period of Winter Compact storage from November 1, 2017 through March 31, 2018, 56,472.54 acre-feet (net) was stored as Compact Water. An additional 2,606.92 acre-feet was added to Conservation Storage during April 2018, prior to the end of winter storage. Distribution into accounts began on April 1, 2018 and continued at the prescribed rates until exhausted on April 30, 2018, resulting in 65,681.55 acre-feet having been transferred. During the 2018 Summer Compact Storage season there three storage event that resulted in additions to Conservation Storage of 16,916.53 acre-feet.

Beginning on November 16, 2017, and pursuant to the provisions of Section III of the 1980 Operating Plan, the storage of certain "other" inflow was credited to a winter water holding account. Sixty-five percent of the total amount was detained in the winter water holding account. This detention in the winter water holding account continued through March 15, 2018, when the distribution of 13,634.17 acre-feet occurred. During July, Amity was again entitled to store water under the Great Plains Storage right and 382.18 acre-feet (gross) was added to their Section III account.

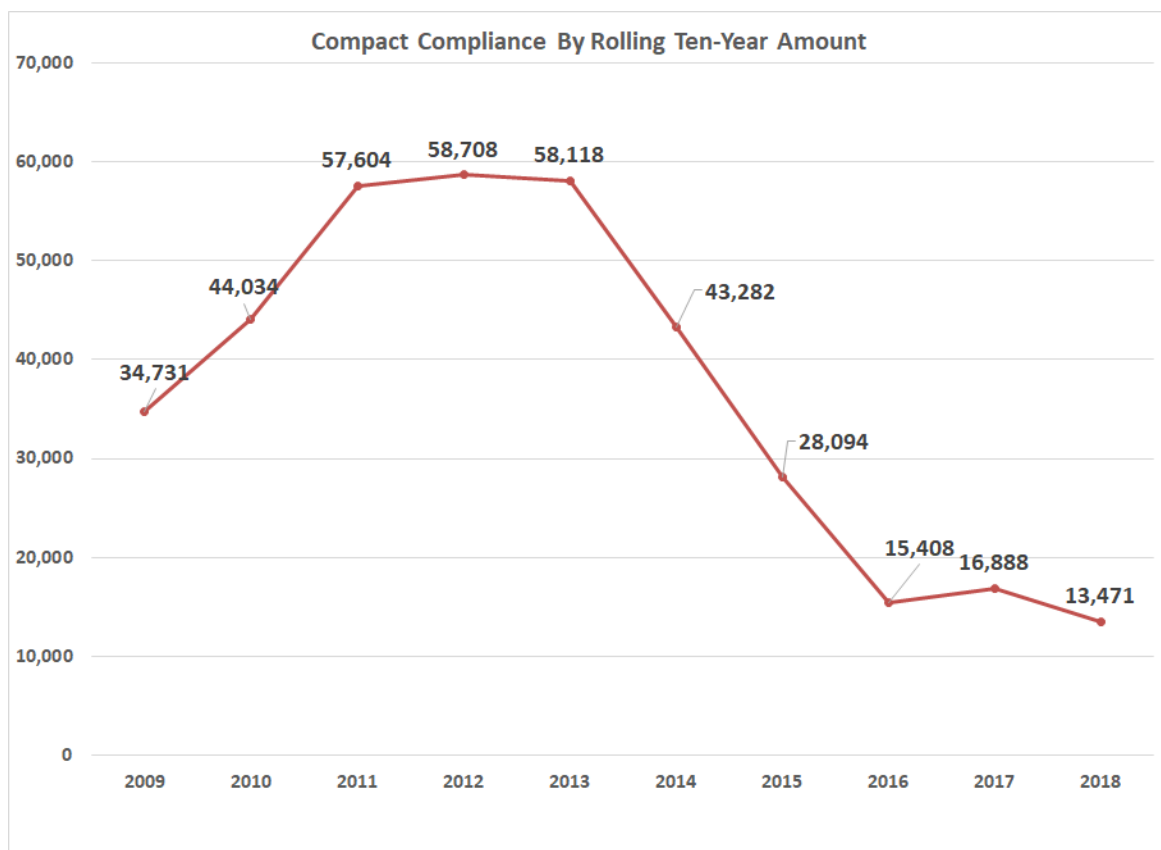
For additional details concerning the operation of John Martin Reservoir, the reader is referred to the Operations Secretary's Report for CY 2018 and the Report of the Colorado State Engineer to the Arkansas River Compact Administration concerning the Offset Account.

### 1.4 Compact Compliance

#### 1.4.1 Post Compact Wells

The H-I Model is used for the purpose of determining depletions to usable stateline flow caused by well pumping of a ten-year period, which is updated annually. The update made in 2019 was for the period 2009-2018. This update showed a credit of 13,471 acre-feet, the following figure illustrates the status of Compact compliance over the past decade.

Figure 9: H-I Model Results - Stateline Accretion Credit



### 1.4.2 Surface Water Irrigation Improvements

Administration of the Irrigation Improvement Rules began the seventh year of operations since the Rules were promulgated in 2011. For 2018 there five approved plans. Aurora continued with operations under a Rule 8 Plan to reuse the Rocky Ford Ditch water right previously changed in court cases 83CW018 and 99CW169 to continue to rehabilitate revegetated lands under the canal following drought damage.

Four Rule 10 Plans were approved for operation during 2018-19 including a plan by the Lower Arkansas Water Management Association (LAWMA) for sprinkler improvements under the Lamar Canal and Amity Canal involving approximately 3,183 acres and a plan by the Purgatoire River Water Conservancy District (PRWCD) for sprinkler improvements under the Enlarged Southside Ditch and Model Canals east of Trinidad involving 1,464 acres of improvements. The Lower Arkansas Valley Water Conservancy District (LAVWCD) applied for two Rule 10 Plans in 2018. The Fort Lyon LAVWCD Plan involved approximately 17,883 acres of sprinkler improvements under the Fort Lyon Canal while

the Non-Fort Lyon LAVWCD Plan involved approximately 8,948 acres of sprinkler improvements, 674 acres of drip improvements and 542 acres of lateral improvements.

The LAWMA Rule 10 Plan operations included return flow maintenance water provided by LAWMA totaling approximately 1,166acre-feet. The two LAVWCD Rule 10 Plans incurred only about 165 acre-feet of return flow maintenance (above John Martin Reservoir) obligation during 2018. The PRWCD plan included a return flow maintenance obligation of approximately 28 acre-feet during 2018.

### **1.5 Special Engineering Committee**

In 2018 the Special Engineering Committee met on five occasions, predominantly by conference call. The focus of these meetings were to advance the efforts of the Colorado Division of Parks and Wildlife in concert with the Lower Arkansas Water Conservancy District (LAWMA) to obtain permission to use the Highland Canal water rights as a source of water to maintain the Permanent Pool in John Martin Reservoir and to a lesser extent to resolve longstanding concerns held by Kansas related to terms of the LAWMA's change of water rights cases in 02CW181, 05CW52, 10CW85 and 15CW3067.

A second temporary one-year agreement was reached for 2018 whereby Highland Canal water was allowed to be used as a source contingent upon delivery of at least 4,700 acre-feet of fully consumable water to the Offset Account in John Martin by the Lower Arkansas Water Management Association. This agreement was ratified by the Arkansas River Compact Administration through approval of Resolution 2018-01.



## 2 Problems Solved

### 2.1 Infrastructure Improvement/ Futile call model (Update)

The Huerfano County Water Conservancy District worked cooperatively with the Division 2 on a project to improve the stream management infrastructure on the Huerfano and Cucharas Rivers by rehabilitating a number of existing stream gages, installing two new stream gages and installing three monitoring wells along the Huerfano River alluvium. This project also involved the development of an administration tool by HRS Water Consultants that will rely on data from these gages and wells coupled with water rights administration data to provide decision making support for our Water Commissioners in Water Districts 14, 16 and 79.

All but one of the gages involved in the project has been completed. The figure below shows an example of the new gage installation (Cucharas River at Harrison Bridge):



### *3 Community Involvement*

#### **3.1 Spring Fire Community Support - Huerfano County**

During June through September of 2018 the Spring Fire became the third largest fire in Colorado history in terms of acres burned (over 108,000 acres). This fire began in Division 3, but spread over the divide into Division 2 before it was finally contained. The fire was so extensive that two separate Incident Command Centers were established in Fort Garland and in La Veta. Almost 300 professional fire fighters were assigned to contain and extinguish the fire and to protect as many homes and critical structures as possible. Despite the best efforts of those involved there were over 100 homes completely destroyed by the fire. The fire burned from June 28, 2018 until 100% containment on September 10, 2018.

Doug Brgoch, South Region Lead Water Commissioner for Water Districts 16 and 79, was so intimately involved in the efforts to provide information and assistance critical to firefighting crews that he was a welcome addition to the daily briefings held at both Incident Command Centers. He was one of a few key non-firefighting individuals who was allowed to travel over La Veta Pass (with Colorado State Patrol escort) to attend meetings at the Incident Command Center in Fort Garland during the fire. Doug's extensive knowledge of water rights, water right owners, key contacts with cities and reservoir owners allowed him to guide planners to locations likely to be key dipping sites effective for reducing flight time to fire hot spots. Doug also helped make sure water use was tracked to the extent possible to ensure that compensation and administration could be validated as successful containment occurred and recovery began.

Doug put in endless hours for the sake of his community and those of his neighbors (across division boundaries), however Doug never accepted a single hour of overtime during the fire. One would not be able to determine the degree to which Doug's contributions helped make a bad situation a lot better than it could have been and Doug received an Above and Beyond Award for his service.

#### 4 *Highlights of 2018*

##### 4.1 Enforcement Cucharas #5: Before and After

The Cucharas #5 dam (Dam) partially failed in 1987. Over the course of the next twenty-five years, the Office of the State Engineer addressed the safety concerns associated with the partial failure by restricting the volume of water that is stored by the Dam and prompting the previous owner and Two Rivers Water to permanently mitigate the risk by rehabilitating or removing the Dam. After several years of engineering review, consultants working on behalf of Two Rivers concluded the most economically viable plan to rehabilitate the reservoir required the removal of the existing Dam and construction of a new dam immediately downstream of the Dam's current location.

In its current condition in the Fall of 2018, the Dam represented a significant safety risk to the public health. It was estimated that a simple 100-year storm, the volume of water most communities plan for their street gutters to safely manage, would have overtopped the Dam and put it at significant risk of failure. There was significant concern that such failure would pose a severe threat to downstream residents should they be unaware of the failure or otherwise unable to escape its flood wave. The risk of flooding was also increased significantly due to the fact that approximately twelve percent of the Dam's inflow drainage area was scorched by the Spring Fire in 2018. It was well known that burn areas significantly increased the threat of flooding and debris flows, both of which presented an extreme danger to the Dam.

Despite efforts to get Two Rivers to comply with orders to breach the dam, the State Engineer's Office ultimately had to exert statutory authority to contract for removal of the dam using emergency funds reserved for such a purpose from the Colorado Water Conservation Board. Removal of the dam began in November 2018 and concluded in January of 2019. Scott Cuthbertson, Deputy State Engineer, Bill McCormick, Chief of Dam Safety, and Mark Perry, Dam Safety Engineer were all key contributors to this effort along with staff from the Attorney General's Office (Paul Benington and Phil Lopez) and the CWCB (Kirk Russell).

Figure 10: Cucharas #5 photos



Dam prior to removal



Removal completed



Looking upstream from dam through reservoir



#### 4.2 Highland Canal Approved as Permanent Pool Source: Update

Following a second successful year of operation under a Substitute Water Supply Plan, the use of the Highland Canal water right was informally approved as the first new source of water for the John Martin Reservoir Permanent Pool at the Arkansas River Compact Administration (ARCA) Meeting in Garden City, Kansas in December of 2018. The official approval of this important source of water came via an ARCA Special Meeting held telephonically on February 14, 2019.

This important step will help ensure the viability of this outstanding eastern plains recreational area in the Arkansas Basin, home of record breaking fish species as shown in the photos below.

Figure 11: Examples of Record Sized Fish (Salvaged from John Martin Stilling Basin)



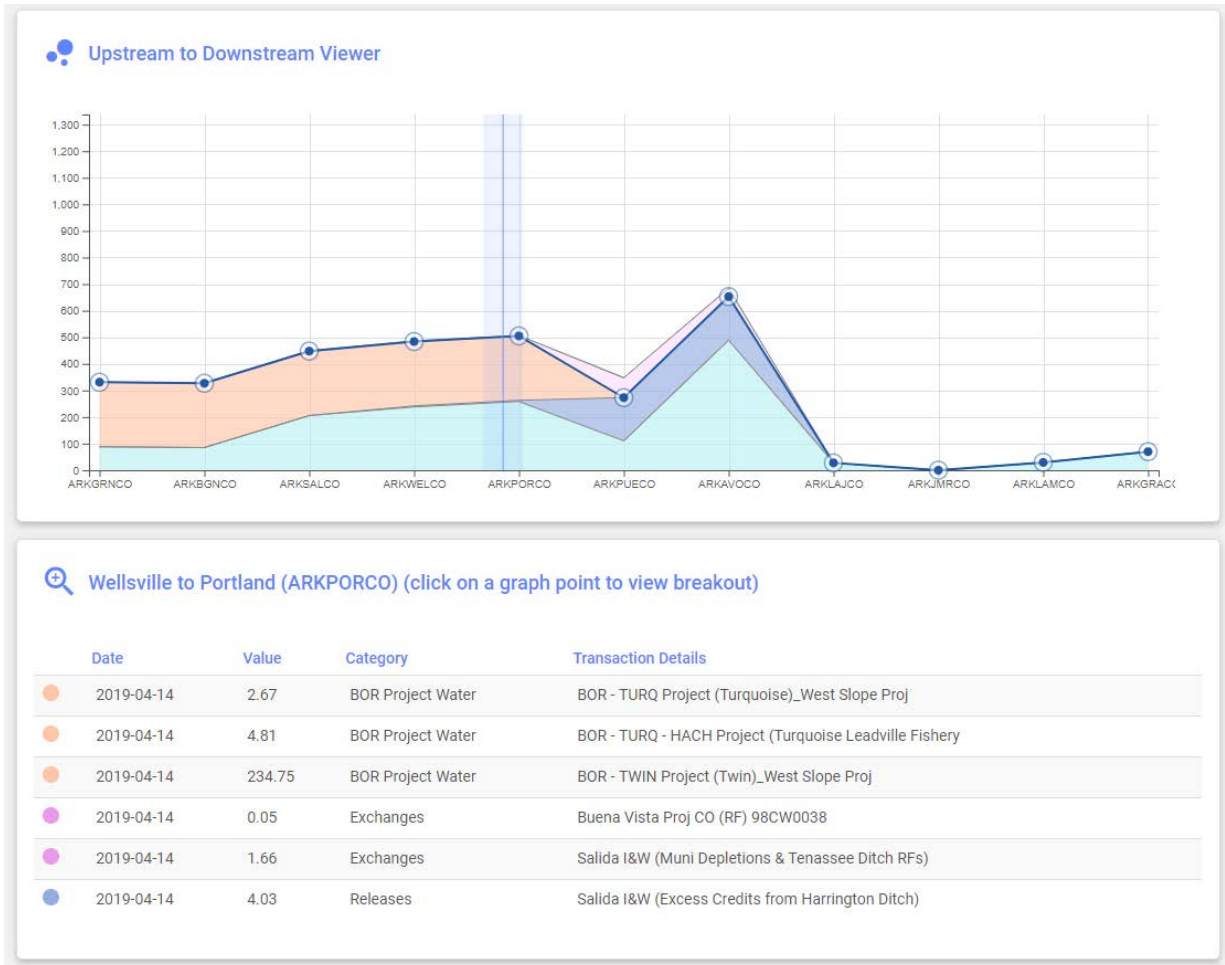
### 4.3 Arkansas Decision Support System (Update)

Important work continued on the Arkansas River Decision Support System in 2018 as summarized below:

- Wilson Water Group (WWG) conducted interviews of Division 2 Water Commissioners and staff and prepared Water District Memos for each of the districts in Division 2. These memos are posted on the CDSS web page at this location.  
WWG also interviewed the major water entities in the basin including Colorado Springs Utilities, Pueblo Water, Aurora, Bureau of Reclamation, Southeastern Colorado Water Conservancy District, Upper Arkansas Water Conservancy District, Purgatoire River Water Conservancy District and Lower Arkansas Valley Water Conservancy District. Memos related to the water rights and operations for these entities are currently under review.
- WWG has done significant work towards preparing the surface water model for the basin, the major element in their scope of work.
- HRS Water Consultants and their sub-consultants have worked to prepared the GIS product associated with work to be done by WWG to prepare the consumptive use model for the basin.
- HRS is mostly complete with their GIS component.

- Leonard Rice Engineers (LRE) has worked on their contract to prepare administrative tools to help Division 2 and Division of Water Resources staff better manage administrative duties in the Arkansas River Basin. A key accomplishment of LRE has been the development of the Arkansas River Dashboard, and interface that provides effective communication and dissemination of water information to basin water users.

Figure 12: Color of Water Example from Dashboard





## 5 *Organizational Changes*

Division 2 had a changing of the guard when Steve Witte retired on June 30, 2018 and Bill Tyner was appointed Division Engineer, effective July 1, 2018. With Bill's appointment to DE, Rachel Zancanella was appointed to Assistant Division Engineer of Surface Water Operations on September 3, 2018. Lori Lest moved from the Hydrography Team when she was appointed Assistant Division Engineer of Litigation on December 1, 2018. These appointments filled all leadership roles for the division.

Other personnel changes throughout the year include resignations of Doug Baxter (Groundwater enforcement), Griff Rainford (Water District 10 deputy water commissioner) and Justin Lucero (Water Districts 18/19 deputy water commissioner). Rebecca Nichols retired on September 30, 2018 (Water Districts 66/67). New hires were Jessica Wodiuk (half time Administrative Assistant), John Canaday (Hydrographer in La Junta), Russ Dash (Groundwater enforcement) and Jacob Olson (Water District 10 deputy water commissioner). Kelsey Singleton worked as a temporary employee for the Hydrography group during the summer. Jessica Lest and Rachael Talbott worked as temporary employees during the year to advance our paperless efforts.

Cheston Hart (Hydrographer) had a position change from EITI to PSRS II, effective May 1, 2018.

### Training/Staff Development

Those employees that participated in educational opportunities include:

- Policy Questions Around Alternative Transfer Methods webinar, Rachel Zancanella, January 2018
- Human Resource Fundamentals of Supervision, Dan Henrichs, January 2018
- Colorado Water Congress, Steve Witte and Bill Tyner, January 2018
- Ditch and Reservoir Company Alliance, Bill Tyner and Rachel Zancanella, February 2018
- Well Metering Annual Conference, Dan DiRezza, Dale Baker, Kaleb Dunn, Chad Brumit, Bethany Arnold and Kathy Trask, February 2018
- Hydrography training for water commissioners by Lori Lest, March 2018
- Performance Plan Training by HR, Steve Witte, Bill Tyner and Rachel Zancanella, March 2018
- Leadership Training Series, Rachel Zancanella, April & May 2018
- Arkansas River Basin Forum, Bill Tyner and Bethany Arnold, April 2018
- Southeastern Colorado Water Conservancy District Fry-Ark Tour, Bill Tyner, July 2018
- Applied Fluvial Geomorphology, Lori Lest and Cheston Hart, July 2018

- Power of Coaching, Rachel Zancanella, August 2018
- Arkansas River Compact Administration gage tour, John Van Oort, Phil Reynolds, Joey Talbott and Lori Lest, October 2018
- CLE Groundwater 201 Update, Bill Tyner, Rachel Zancanella and Martha Archuleta, October 2018
- Hydrography training for water commissioners by Joey Talbott and Lori Lest, October 2018

### CWOA

Division 2 hosted the annual CWOA Annual Meeting in Pueblo during October 2018. Key organizers were Bethany Arnold, Doug Hollister, Martha Archuleta, Monica Long, Phil Reynolds, Audrey Sartin, Kaleb Dunn, Ina Bernard and Lori Lest.

### Budget & Pay

The operational funding for Division 2 stayed at the same level as the previous year. Of the \$195,054 allocation about 50% was spent on leased vehicle expenses.

Pay for Performance was not funded. The rating criteria changed from 3 levels of performance to 4 levels mid-year. Those employees who earned Exceeds Expectations ratings received a one-time \$200 bonus from the agency. Salary Survey increases were 3% for each employee. Employees contribution to PERA increased in July 2018. Pay adjustments (Salary Compression) were made in May 2018 for employees that were being paid significantly below their peers.

Overtime was allocated based on our monthly requests for most of the year. Overtime was denied in August, September, October and November due to budget concerns. However, funding was approved for winter work for employees Lenna Rauber and Jerry Livengood.

### Vehicles

Division 2 received 5 new vehicles during the year. The vehicles being replaced were used as summer vehicles for part-time employees. We also received 2 seasonal vehicles from Fleet for the same purpose.

### Office

Per the Division 2 office lease, the office was painted and re-carpeted in the spring. Taking advantage of the need to move things out of their offices to accommodate the work, staff made a significant effort to purge files and identify scanning needs. We significantly cleaned up a lot of areas. We were also able to purchase some custom furniture to allow better use of our office space.

Awards

Dennis Jones was selected as Water Commissioner of the Year in September 2018.

Above and Beyond Awards were given to Lori Lest, Kaleb Dunn and Wendy Hunker for efforts during the office renovations.

Doug Brgoch received an Above and Beyond Award for his work during the Spring Creek fire.

Janet Dash, Bethany Arnold and Lori Lest received Bricks and Mortar Awards.

Cheers for Peers Awards were given to Kathy Trask, Lonnie Spady, Donna Smith, Lenna Rauber, Steve Stratman and Jacob Olson.

Appendix SEQ Appendix \\* ALPHABETIC A: Division 2 Organization Chart

