Division 2 Annual Report 2020

Arkansas River Basin

Department of Natural Resources

Division of Water Resources

April 2021

COLORADO
Division of Water Resources
Department of Natural Resources

Kevin Rein
State Engineer/Director of Colorado Division of Water Resources
1313 Sherman St. – Rm. 818
Denver, CO

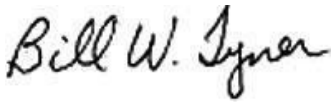
This document is provided as an executive summary report of activities and accomplishments of Division 2 personnel during 2020 in partial fulfillment of the requirements of CRS 37-80-105.

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 continued to perform their work in a manner that assisted in the effective and efficient use of water during 2020.

This past year has been one that will long be remembered due to the coronavirus pandemic and the monumental shift it caused in everyone's lives, but in particular in how Division 2 and other water divisions conducted business with most work being done from home and most meetings conducted by virtual media and not in person. Although we all will long remember 2020, in many ways I believe that we are ready to put 2020 behind us and move forward with our lives and with some degree of adventure to see what working solutions will be in 2021 and beyond. It is highly likely that hybrid work situations will be the norm and each division of each agency will have to take on the challenge of what that hybrid work situation looks like and how we will ensure that we are able to fully meet our commitments to water users and the citizens of Colorado.

Our survival over the past year is a huge credit to the dedicated Division 2 employees who hung in there and took on extra workload to help meet our commitments. With several retirements and departures during 2020 and early 2021, and with no opportunity to fill vacancies until February of 2021, Division 2 efforts to perform critical tasks were only achieved through amazing dedication and hard work by those who remained committed to being successful.

The pandemic placed an extremely difficult challenge on parents or grandparents of school age children who had to attempt to be teachers/mentors while simultaneously trying to do their normal jobs. My grateful thanks goes out to each individual who persevered through this extraordinary time and not only survived, but shone.



April 21, 2021

Bill W. Tyner, P.E.
Division Engineer

Date

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1 2020 Water Supply and Administration Operations

Water supply conditions in 2020 were below average within the Arkansas River basin and was considered a "Very 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 2020. Using this criteria, 2020 ranked as the tenth worst year in that 70 year period.

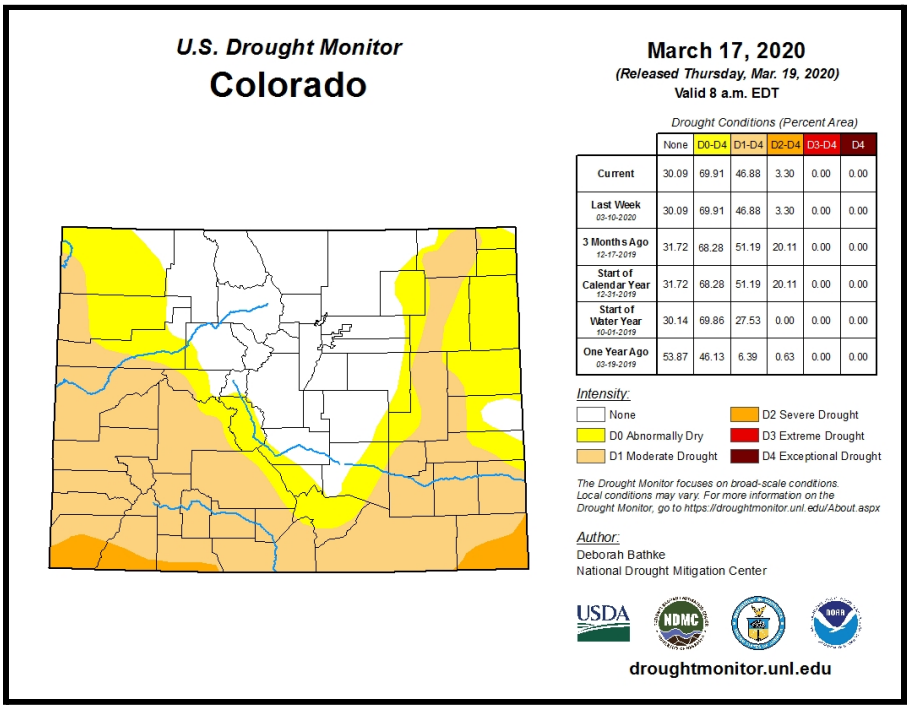
The absence of a monsoon rain season and fairly poor runoff from snowmelt contributed to the conditions in 2020.

1.1 Water supply indicators

1.1.1 U.S. Drought Monitor

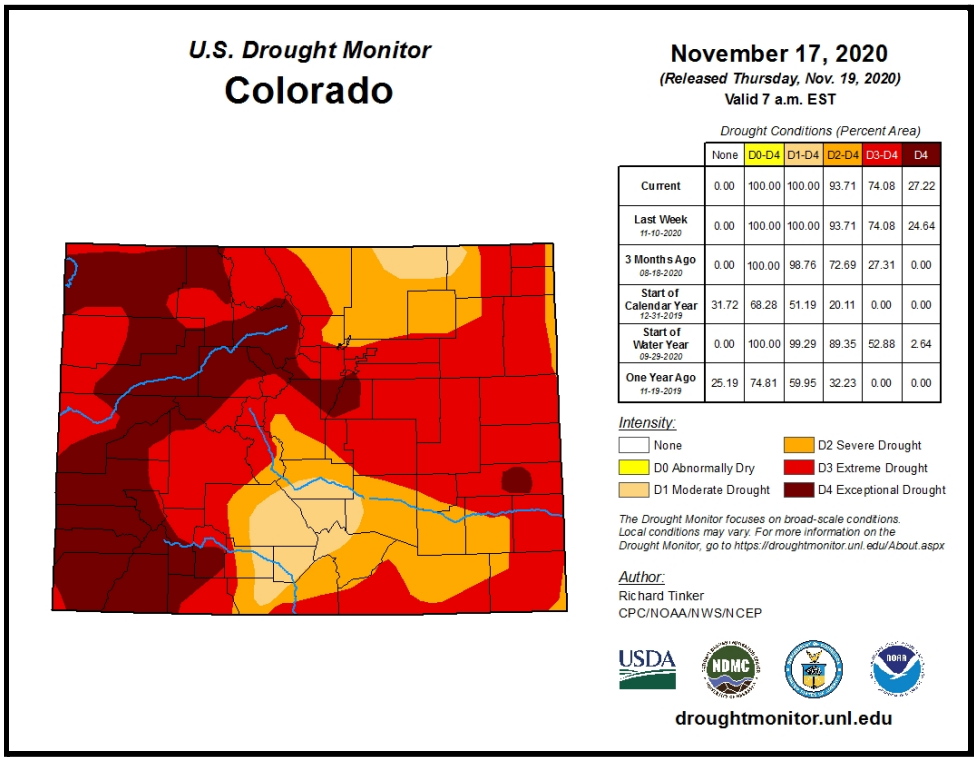
Drought conditions in the Arkansas Basin at the beginning of 2020 had improved due to better water supply in 2019, however there were still some notable drought conditions as reflected in the April 2020 Drought Monitor map below where some Moderate drought existed:

Figure 1: Beginning of Season Drought Conditions Map



At the end of the 2020 irrigation season the drought conditions had degraded as shown below where large portions of the basin were in Severe Drought or Extreme Drought:

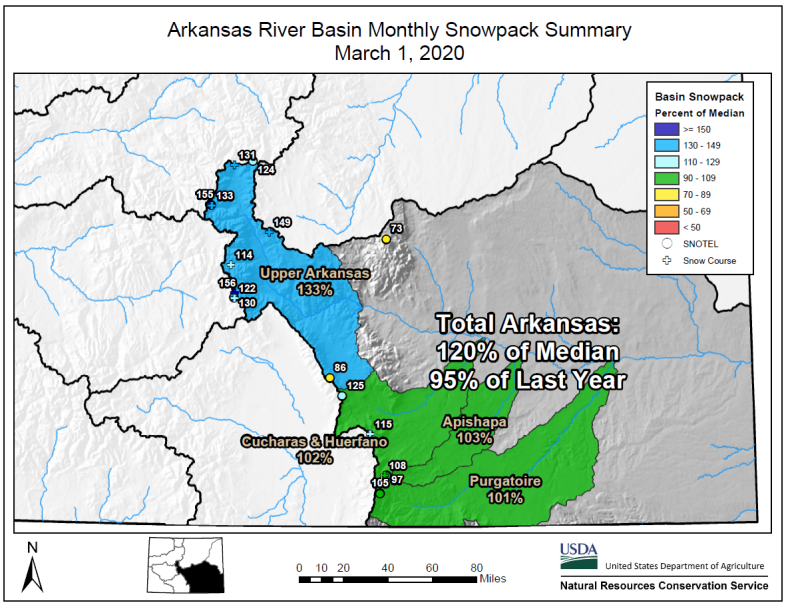
Figure 2: End of Season Drought Conditions Map

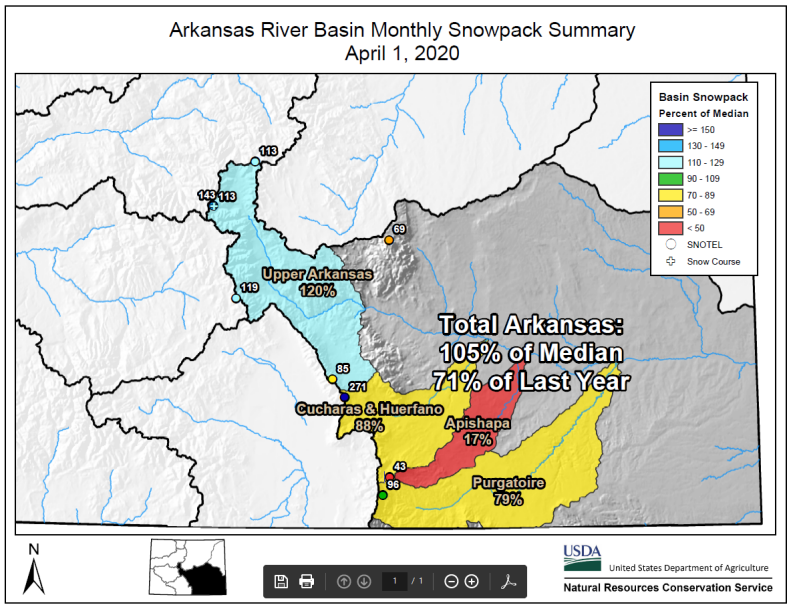


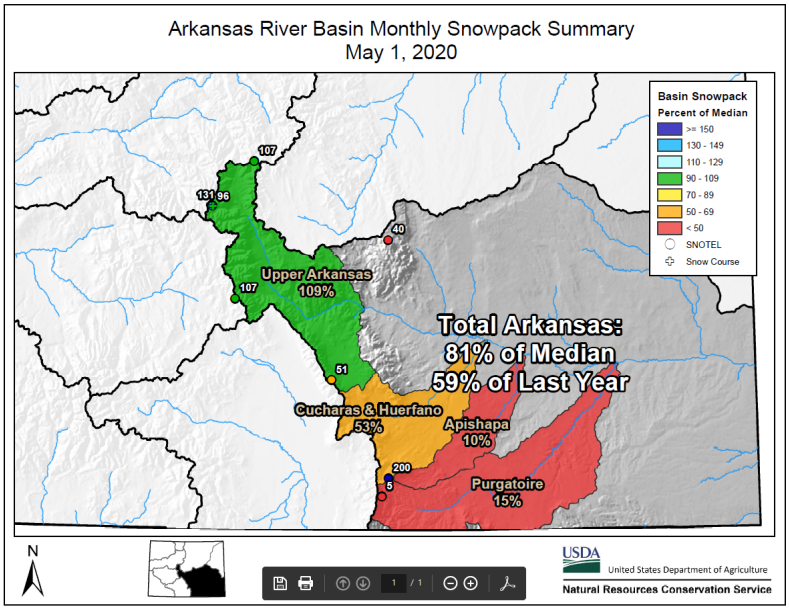
1.1.2 Snow Pack

The snowpack in the Arkansas Basin was near average early in 2020, but degenerated through March, April and May due to very poor snow contributions in those months.

Figure 3:Monthly Snowpack Summary Maps







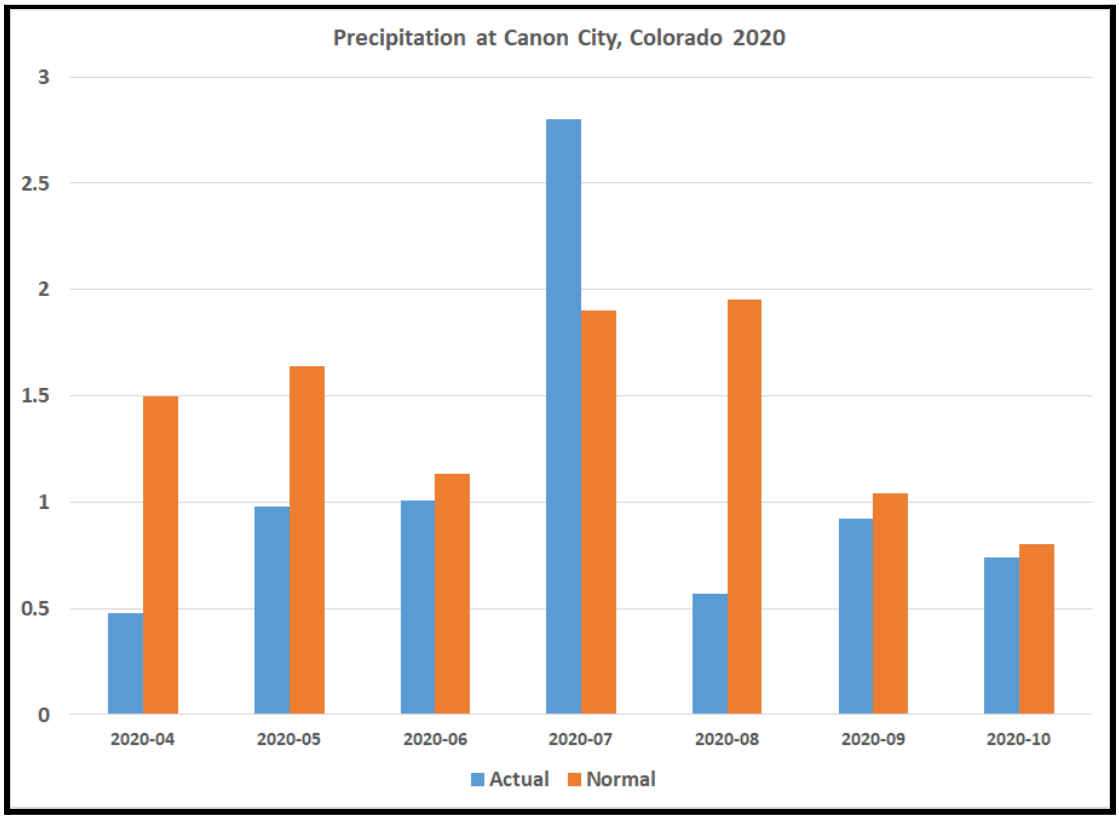
The southern tributaries in the basin were particularly impacted by very poor snowmelt runoff conditions.

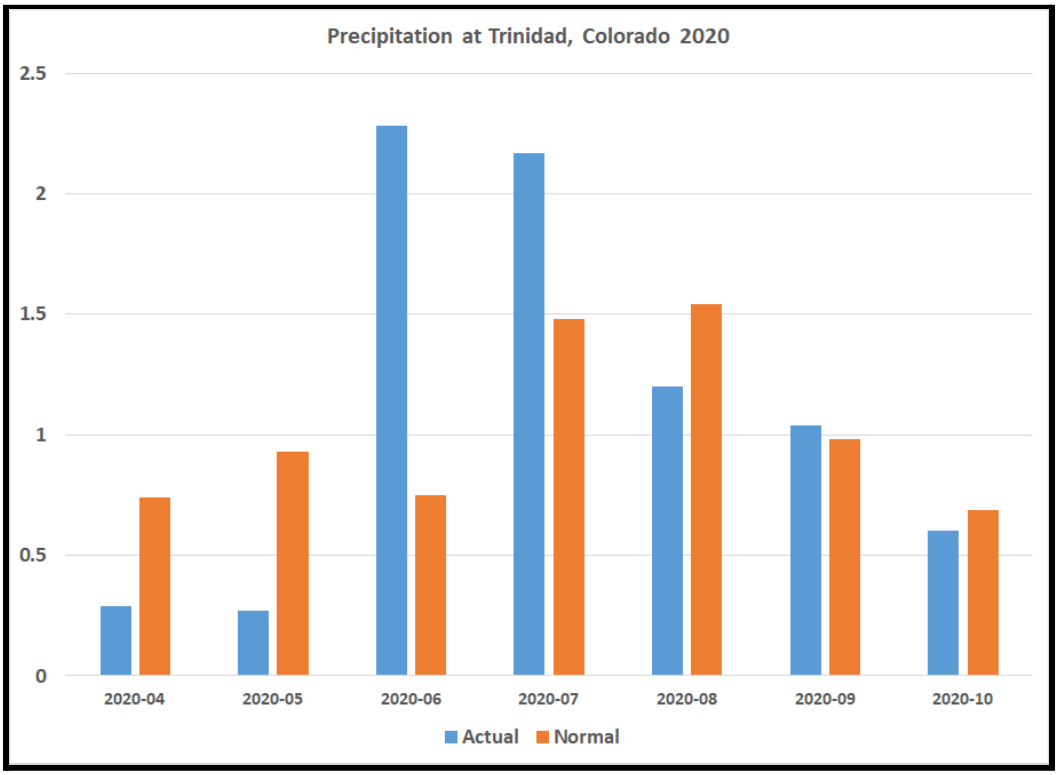
The snowpack in the Upper Colorado River Basin, namely the Frying-Pan River Basin, where imported transmountain water for the Fryingpan-Arkansas Project is derived, experienced a snowpack and runoff pattern below average as well and resulted in below average imports of Fryingpan-Arkansas water.

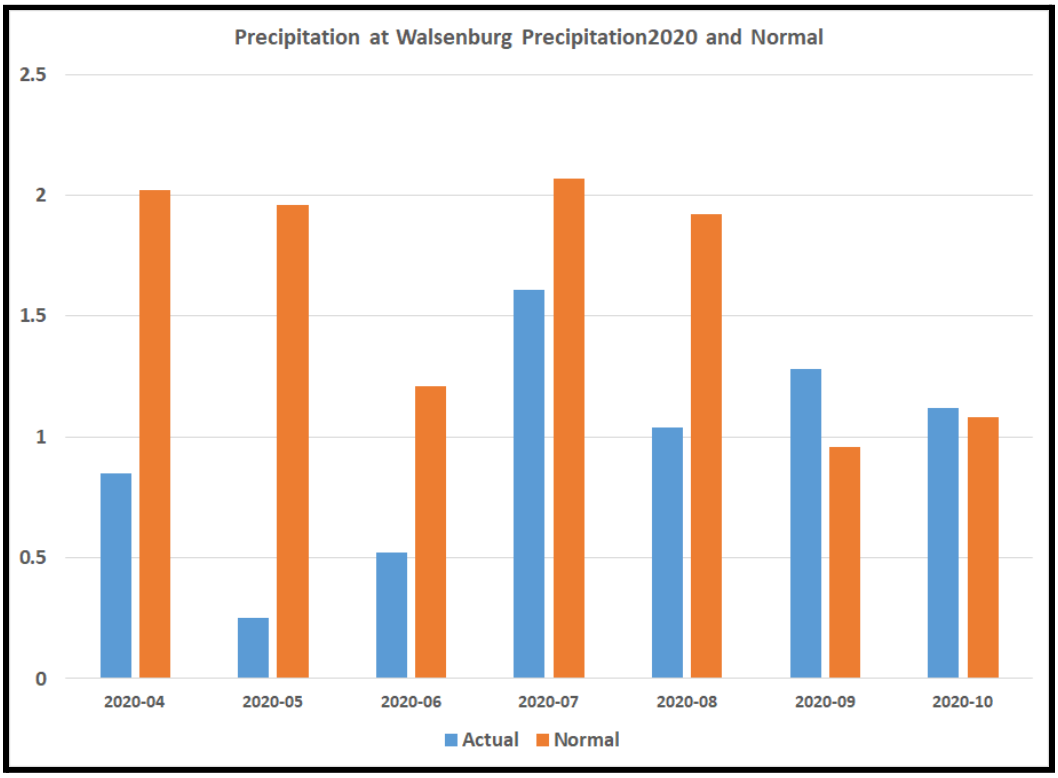
1.1.3 Precipitation and Streamflow

As described above, the precipitation in the Arkansas Basin in 2020 was fairly poor and similar to 2018 conditions. The three location graphs below provide an illustration of the precipitation that occurred during the year.

Figure 4: Average Precipitation at Key Locations compared to Measured Precipitation 2020

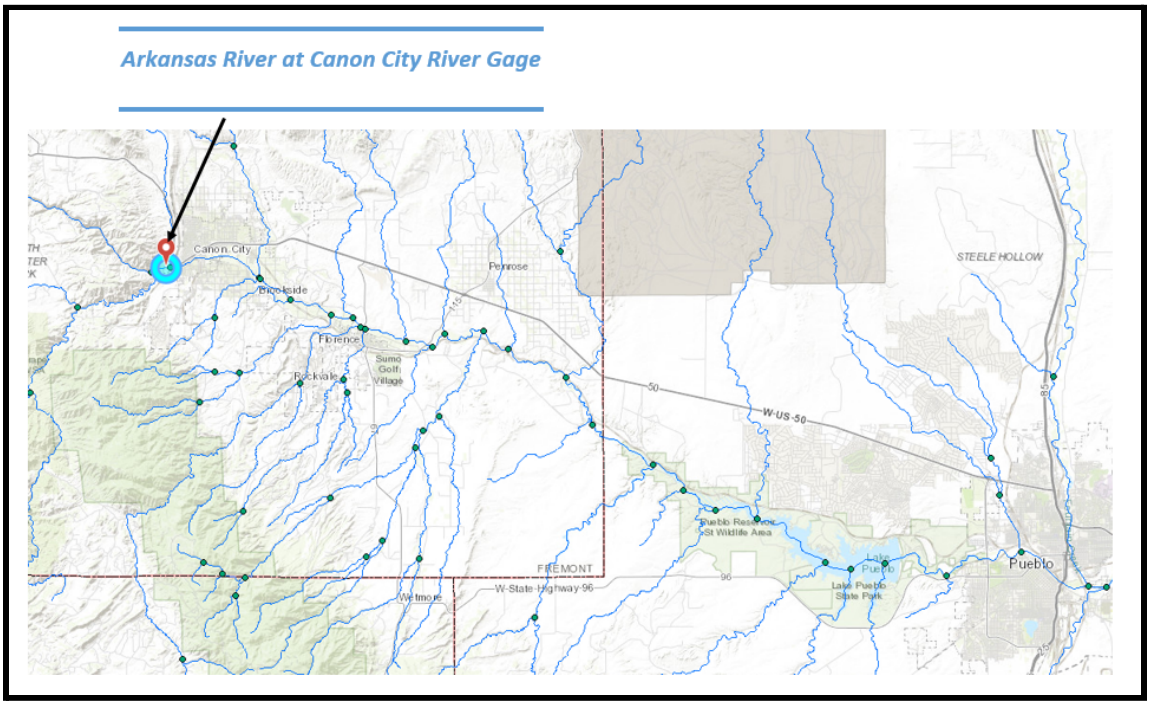


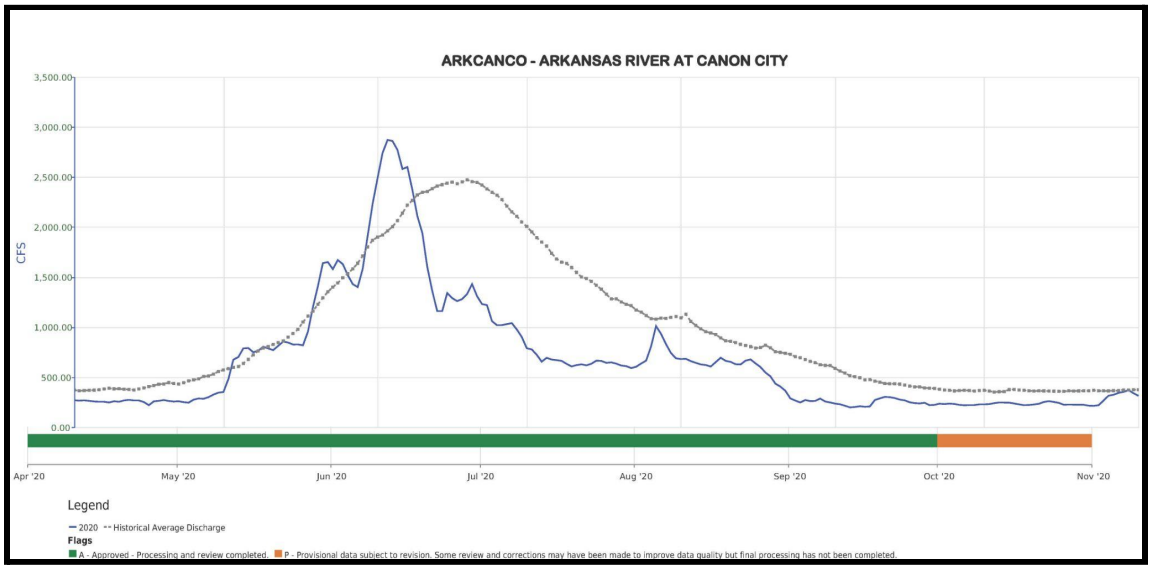

Precipitation at Trinidad, Colorado 2020
2.5
2
1.5
1
0.5
0
2020-04
2020-05
2020-06
2020-07
2020-08
2020-09
2020-10
Actual
Normal

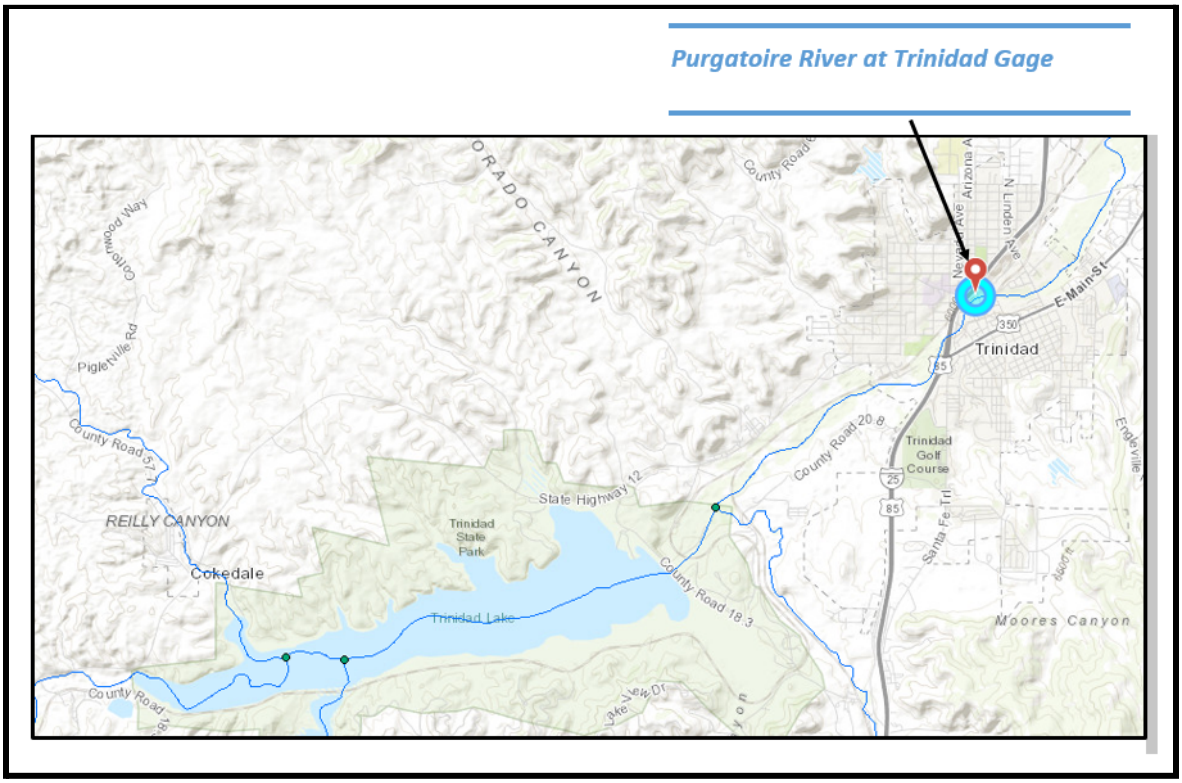

Precipitation at Walsenburg Precipitation2020 and Normal
2.5
2
1.5
1
0.5
0
2020-04
2020-05
2020-06
2020-07
2020-08
2020-09
2020-10
Actual
Normal

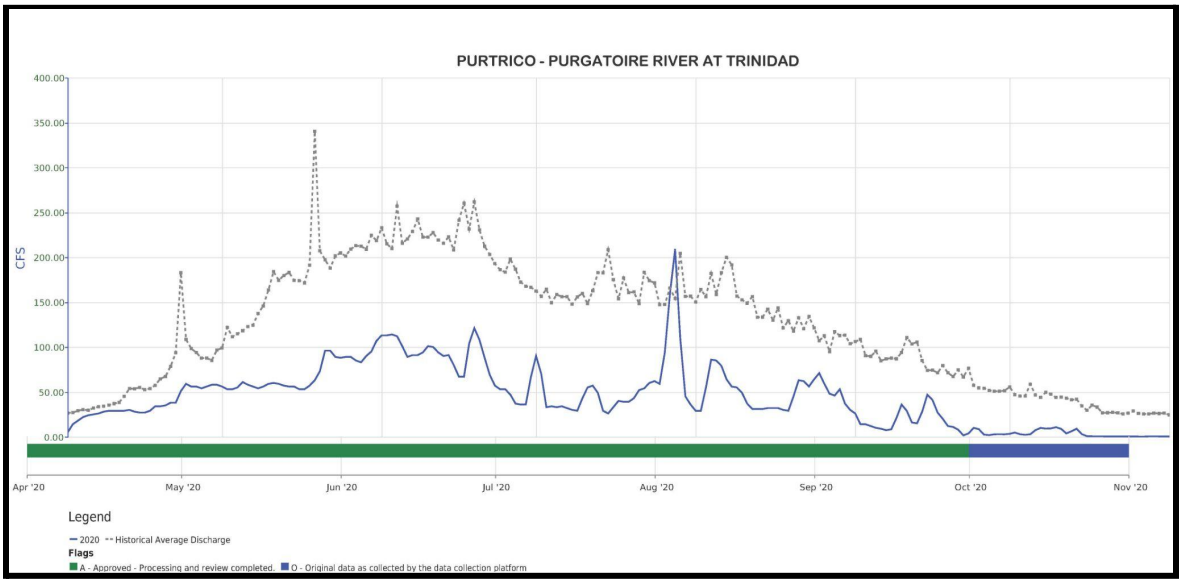
Streamflow was fairly strong on the mainstem through the first half of 2020 with some diminution during the latter part of the summer at many locations. In the southern tributary areas on the Purgatoire River and Huerfano River, streamflows were below normal except for a summer rain event when flows exceeded average.

Figure 5: Average Stream flow compared to 2020 Stream flow at Various Locations

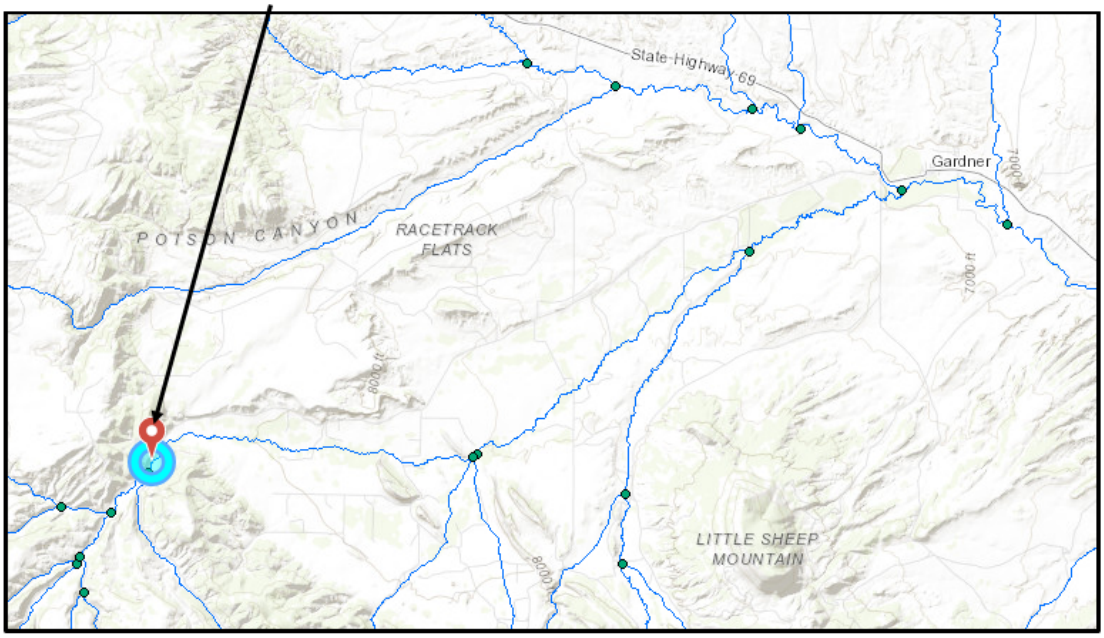


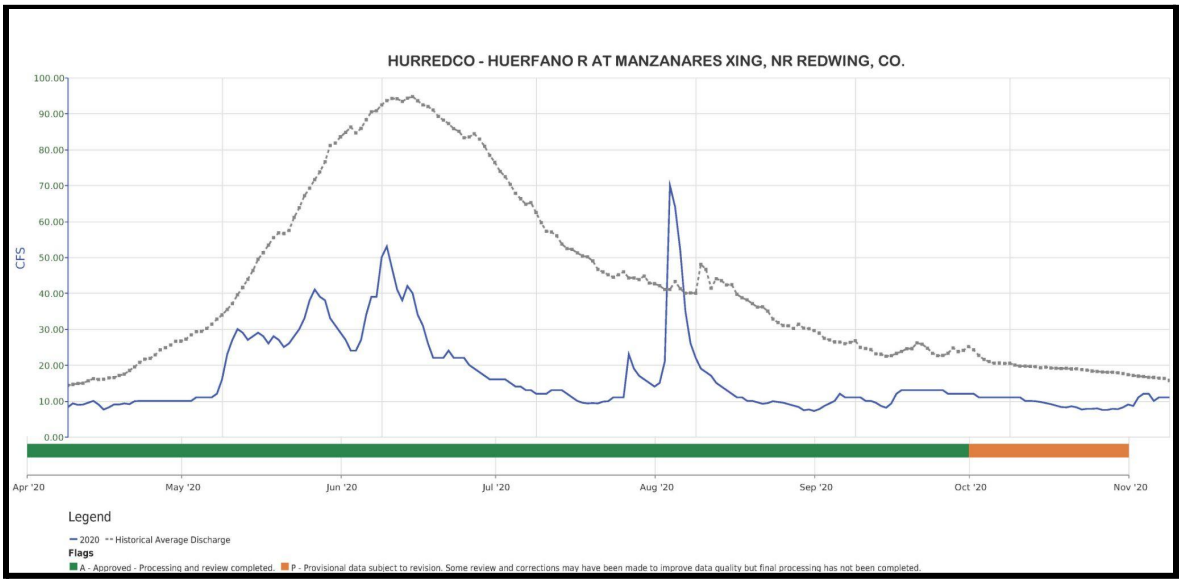



Purgatoire River at Trinidad Gage
ORADO CANYON
Pigeonwood Way
Pigeonville Rd
County Road 57
REILLY CANYON
Cokedale
Trinidad State Park
Trinidad Lake
State Highway 12
County Road 18.3
County Road 20.8
Trinidad Golf Course
Santa Fe Trl
Moores Canyon
Lake View Dr
N Linden Ave
E Main St
Trinidad
350
25
85


PURTRICO - PURGATOIRE RIVER AT TRINIDAD
CFS
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Apr '20
May '20
Jun '20
Jul '20
Aug '20
Sep '20
Oct '20
Nov '20
Legend
2020
Historical Average Discharge
Flags
A - Approved - Processing and review completed.
O - Original data as collected by the data collection platform

Huerfano River at Manzanares Crossing
Near Redwing, Colorado





1.2 Administration Activities

1.2.1 Pueblo Winter Water Storage Program

The final report for the period November 15, 2019 through March 14, 2020 showed a system grand total of 116,840 acre-feet which was 16,768 acre-feet or 16.8% more than was stored in the previous year and 14,578 acre-feet or 11.1% 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 2019-20, a total of 32,162 acre-feet was accumulated in John Martin Reservoir as conservation storage prior to March 15, 2020. This was 9,138 acre-feet or 39.7% more than the amount stored during the period 1950 – 1975, and 3,734 acre-feet more than in 2018-19.

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 2020 Transmountain Water Imported to Division 2

RECIPIENT				
DIV/WD	DIVERSION STRUCTURE	STREAM	ACRE-FT	STREAM
2/11	COLUMBINE DITCH	ARKANSAS RIVER	1,452	EAGLE RIVER
2/11	EWING DITCH	TENNESSEE CREEK	658	EAGLE RIVER
2/11	WURTZ DITCH	TENNESSEE CREEK	2,012	EAGLE RIVER
2/11	HOMESTAKE TUNNEL	LAKE FORK CREEK	23,643	EAGLE RIVER
2/11	BOUSTEAD TUNNEL	LAKE FORK CREEK	53,240	FRYINGPAN RIVER
2/11	BUSK-IVANHOE TUNNEL	LAKE FORK CREEK	3,250	FRYINGPAN RIVER
2/11	TWIN LAKES TUNNEL	LAKE CREEK	36,540	ROARING FORK RIVER
2/11	LARKSPUR DITCH	PONCHA CREEK	271	TOMICHI CREEK
2/79	HUDSON DITCH	HUERFANO RIVER	155	MEDANO CREEK
2/79	MEDANO DITCH	HUERFANO RIVER	466	MEDANO CREEK
2/10	BLUE RIVER PIPELINE	FOUNTAIN CREEK	8,030	BLUE RIVER
	TOTAL:		129,717	

The Fryingpan-Arkansas Project reported that their imports of transmountain water in 2020 were 85% of average. This import amount was a substantial decrease from 2019 Project imports.

1.2.3 Surface Water Administration

Below average snowpack, followed by below average rainfall, particularly during the monsoon season, combined for a well below average water supply in the Arkansas Basin in 2020. Reservoir storage from previous wet years helped keep 2020 from being a very poor water supply year. John Martin Reservoir, for example, saw an average amount of storage during the 2019-2020 winter months with a peak daily storage amount of 123,880 acre-feet on April 7, 2020. Storage content at the end of the irrigation season in John Martin Reservoir was 33,895 acre-feet. A partial reason for the large decrease was due to Kansas' choice to empty all of their Section II water and most of the Offset Account water for delivery to Kansas' ditches.

Figure 6: Storage Content John Martin Reservoir IY 2020

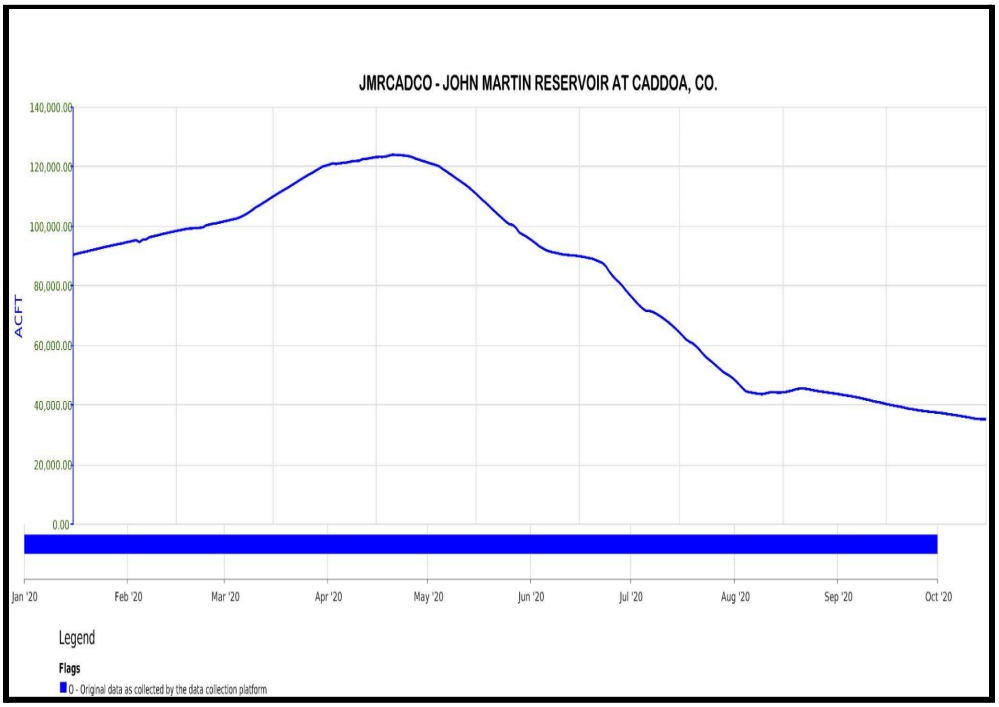
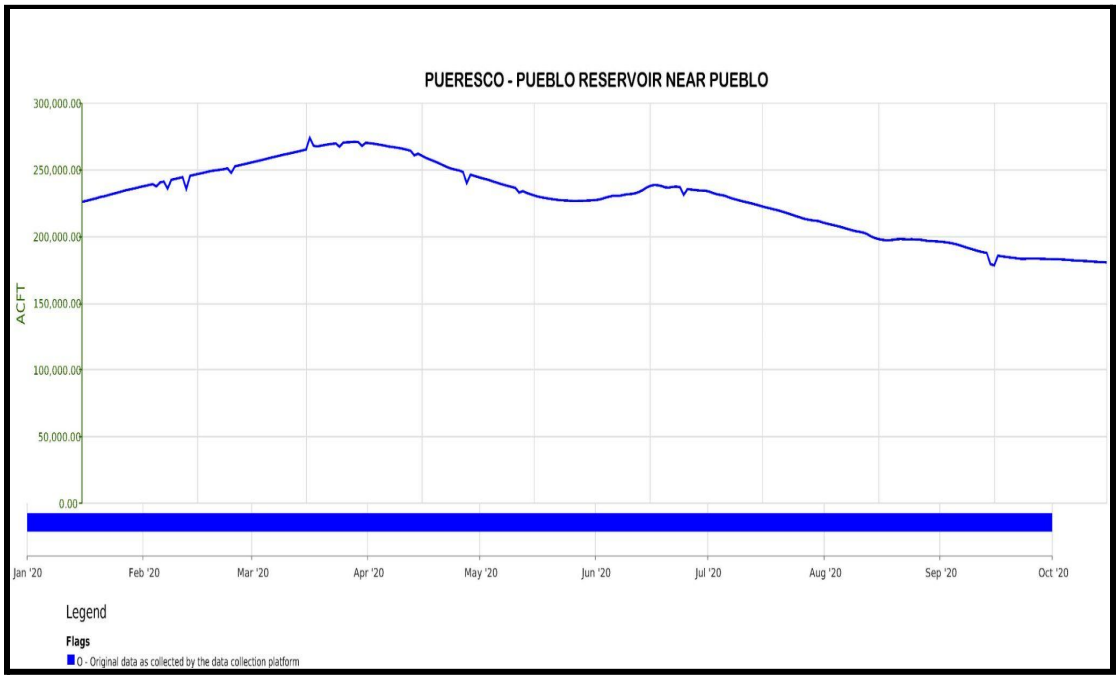


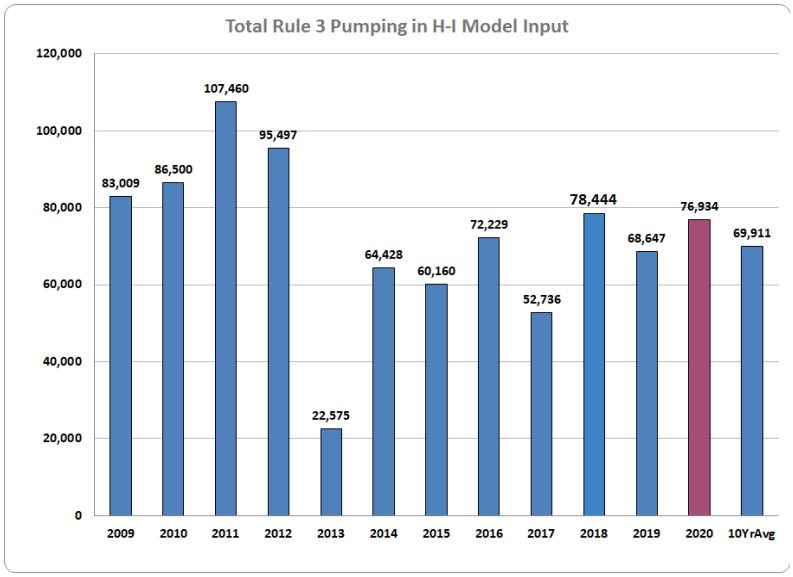
Figure 7: Storage Content Pueblo Reservoir IY 2020



1.2.4 Ground Water Administration

During 2020 the irrigation well pumping represented in the H-I Model totaled 76,934 acre-feet. For User Groups 1-14 (above John Martin Reservoir Area) the total pumping was 49,620 acre-feet and for User Groups 15-24 (below John Martin Reservoir) the total pumping was 27,314 acre-feet.

Figure 8: Irrigation Well Pumping - Ten Year Comparison



For 2020 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 a 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.

Overall irrigation well pumping in 2020 was above average for the past ten year period. The 2020-2021 Rule 14 Plan approvals for AGUA, CWPDA and LAWMA provided for an estimated amount of pumping and stream depletions as follows:

Table 2: Estimated Pumping, Irrigation Pumping and Stream Depletions

Plan	Estimated Total Pumping (Original Plan without Amended Pumping) (AF)	Estimated Rule 3 Irrigation Pumping (Original Plan without Amended Pumping) (AF)	Estimated Stream Depletions (Original Plan without Amended Pumping) (AF)
AGUA	7,460	5,326	3,552
CWPDA	53,866	44,664	26,313
LAWMA	58,229	42,794	21,114
TOTALS	119,555	92,784	50,979

The 2020 calendar year actual pumping and stream depletions for AGUA, CWPDA and LAWMA were as follows:

Table 3: Actual Pumping, Irrigation Pumping and Stream Depletions

Plan	Actual 2020 Calendar Year Pumping (AF)	Actual 2020 Calendar Year Rule 3 Irrigation Pumping Included in H-I Model (AF)	Actual 2020 Calendar Year Stream Depletions (AF)
AGUA	5,728	4,246	4,525
CWPDA	45,383	36,210	22,677
LAWMA	38,139	34,933	11,253
TOTALS	89,250	75,389	38,455

1.2.5 Water Court Activity

2020 caseload summary:

- 87 new cases were filed.
- 18 Statement of Oppositions were filed, 6 of which were LAWMA cases
- No cases we were parties to were decreed.
- 27 cases we are parties to remain un-decreed

We had several applications come in without augmentation and instead relying on a futile call.

Interesting discussions with our Water Referee and Kevin, Tracy, Chris Stork, Divisions 5 and 6 on the difference of opinions on the statutes for Simple Change and Erroneously Described point of diversions. This is inconsistent across the state with the Water Court. Division 2 and 5 Water Referees had the opinion that the 500 foot/200 foot rule in the Erroneously Described Statute applied to the Simple Change Statute, but with the analysis provided by our team the Division 2 Referee now holds the same opinion as DWR. That opinion is that the 500 foot/200 foot rule only applies to the Erroneously Described point of diversion and that if a water user is moving their point of diversion from their original decreed point of diversion no matter the distance, then they need to apply in court for a Simple Change of point of diversion.

1.2.6 2020 Abandonment Update

Division 2 reviewed 2,648 water rights for the 2020 Abandonment list. 1,718 water rights were removed and 930 water rights were published to list on July 1, 2020. To this date we have received 110 objections which we are currently making determinations on.

1.2.7 Administration of Decreed Plans for Augmentation

Twenty-seven new augmentation plans were decreed in 2020, with the current total number of decreed plans shown here:

Table 4: Number of Augmentation Plans by Water District and Year

WD	2016	2017	2018	2019	2020
10	285	340	379	387	400
11	116	127	129	130	132
12	38	48	51	53	56
13	30	30	31	31	33
14	15	34	34	38	42
15	13	13	13	13	14
16	20	28	28	29	29
17	9	15	19	20	20
19	10	14	14	14	15
67	18	19	19	19	20
79	2	2	2	3	3
Total	556	670	719	737	764

The majority of the Augmentation Plans are in Water District 10, most 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 2020 of 100%**. The District 10 Water Commissioner and Deputy are also responsible for working with these plans to bring them into compliance for failure to report or for over pumping. The remaining 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.

In the Fall of 2020, 909 emails and letters were sent to property owners requesting meter readings and use reports, 686 responded for a 75% 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 2021

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.

Augmentation plans relying on the Independence Pass Transmountain Diversion System in Twin Lakes Reservoir had adequate water supplies in 2020 to cover depletions throughout the year. Reporting was greatly improved during the fall of 2020 for many of the individual and small subdivision augmentation plans. This reporting will be used to update release schedules from the SEO Account in Twin Lakes to match depletions.

This will, in turn, help conserve water in the SEO Account that can then offer additional drought year protection.

Efforts in the coming year will be to expand what has been done in District 11-13 to improve reporting and ensure depletions are adequately covered.

2 Compact Issues

2.1 Compact Operations

During the period of Winter Compact storage from November 1, 2019 through March 31, 2020, 38,614.66 acre-feet (net) was stored as Compact Water. An additional 78.83 acre-feet (78.83 acre-feet - Offset Accounts transfer) was added to Conservation Storage prior to the end of winter storage. Distribution into accounts began on April 1, 2020, in accordance with Subsection II A of the revised 1980 Operating Plan and continued at the prescribed rates until exhausted on April 18, 2020. The transfer of 37,387.08 acre-feet as prescribed by Section II D of the 1980 Operating Plan (including 2,697.56 acre-feet of summer stored water from April 1, 2020 through April 18, 2020 and 78.83acre-feet of Offset Account transfers).

In contrast, the previous year's storage totaled 40,814.21 acre-feet (net). The 1950 to 1975 historical average amount of Winter Compact Water storage was 22,209 acre-feet in the period prior to the beginning of the Pueblo Winter Water Program operations.

During the 2020 Summer Compact Storage season, there were no events that resulted in additions to Conservation Storage beyond April 18, 2020.

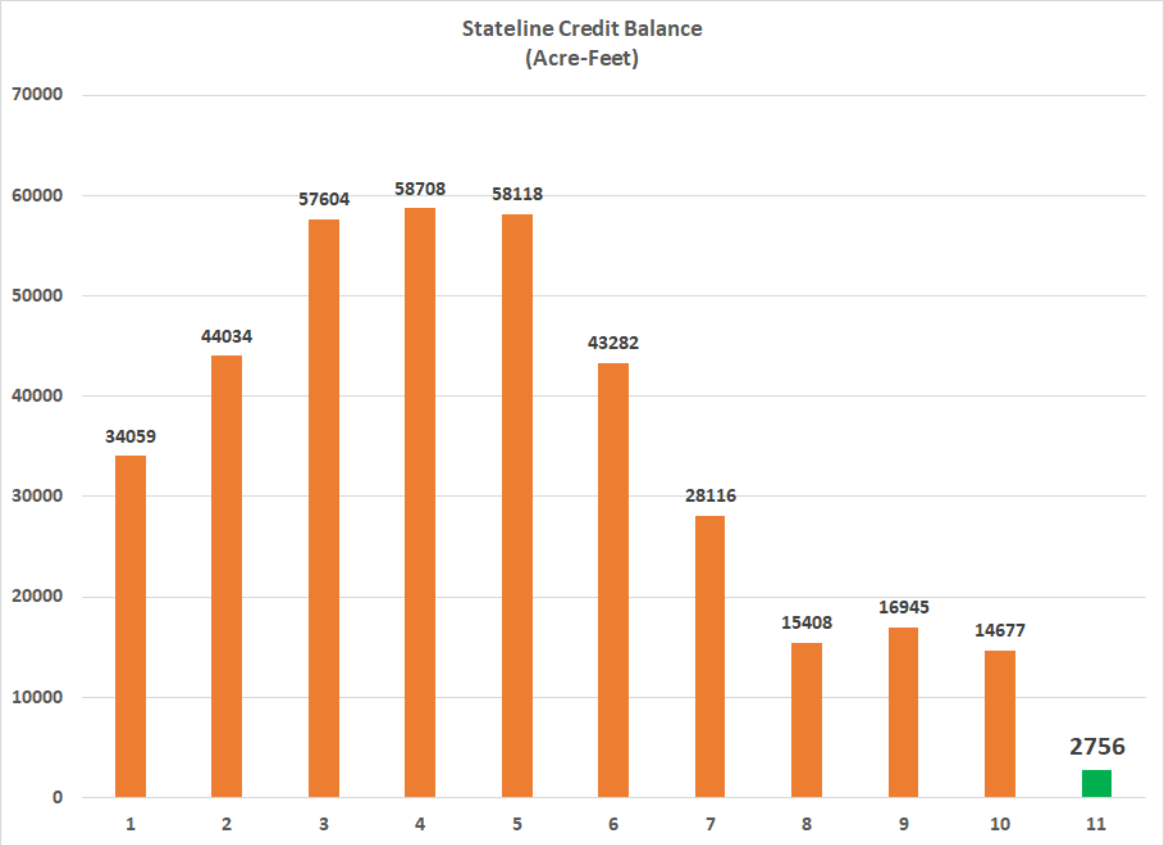
For additional details concerning the operation of John Martin Reservoir, the reader is referred to the Operations Secretary's Report for CY 2020 and the Report of the Colorado State Engineer to the Arkansas River Compact Administration concerning the Offset Account.

2.2 Compact Compliance

2.2.1 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 2020 was for the period 2010-2019. This update showed a credit of 2,756 acre-feet, the following figure illustrates the status of Compact compliance over the past decade.

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



2.2.2 Surface Water Irrigation Improvements

Administration of the Irrigation Improvement Rules began the ninth year of operations since the Rules were promulgated in 2011.

Four Rule 10 Plans were approved for operation during 2020-21 including a plan by the Lower Arkansas Water Management Association (LAWMA) for sprinkler improvements under the Lamar Canal, Fort Lyon Canal and Amity Canal involving approximately 4,747 acres of improvements 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 1,711 acres of improvements. The Lower Arkansas Valley Water Conservancy District (LAVWCD) applied for two Rule 10 Plans in 2020. The Fort Lyon LAVWCD Plan involved approximately 20,207 acres of sprinkler improvements and 1,173 acres of lateral improvements under the Fort Lyon Canal while the Non-Fort Lyon LAVWCD Plan involved approximately 9,212 acres of sprinkler improvements, 639 acres of drip improvements and 1,804 acres of lateral improvements.

2.2.3 Special Engineering Committee

In 2020 the Special Engineering Committee met on several occasions. Initially on January 16th by conference call in preparation for an in person meeting in Burlington,

CO on February 11th and 12th. The purpose of this meeting was to provide information to Kansas to support ongoing discussions related to the Colorado Multi-Use account in John Martin Reservoir. Several presentations were given by guest speakers, Dr. Tim Gates, Kenan Diker and Jack Gobel related primarily to water quality conditions and initiatives to improve water quality in the Lower Arkansas valley. Though dialog continued, Kansas indicated that a pilot project for the account was unlikely to be supported in 2020. Later meetings of the SEC in 2020 were held exclusively via online platforms such as Zoom and Google Meet after the 2020 Covid19 Pandemic caused a total freeze to all work-related travel for both Colorado and Kansas. Those meetings included an April 23, 2020 meeting to discuss and explain the 2020 Pueblo Reservoir Spill Operations by participants of the Multi-Use Account as well as a September 28, 2020 online meeting in which Colorado continued presentations to Kansas in support of the Multi-Use Account by Jack Goble (Projections on Rule 10 Build Out), Mark McLean (Clean Sources" available for Pilot Project), Rachel Zancanella (Water Sources Operations from Pueblo Reservoir) and John Van Oort (Arkansas River Operations Dashboard and Exchanges). After this meeting, Kansas provided Colorado with a document outlining the Framework of issues to be addressed as part of the negotiations related to the Colorado Multi-Use Account, among other Matrix issues. Colorado provided a response to this document on February 2, 2021. Unfortunately, despite the discussions related to this topic, little further progress was made on the subject in 2020, but work on the issues continues to be a priority ongoing into 2021.

3 Problems Solved

3.1 Infrastructure Improvement/ Futile call model (Update)

The Purgatoire River Water Conservancy District worked cooperatively with Division 2 on a project to improve the stream management infrastructure on the Purgatoire River. The project extended into 2020 with completion of work on the Fisher's Crossing gage which improved access to the site and included high-flow projection. A new radar mount was installed and fencing put up around the equipment as well as work to clear the parking area and access route. The new radar is now available online. Ongoing measurements to develop a new rating curve and validate observations in the field will continue for both the Fisher's Crossing gage (PURFICCO) and the Hoehne station (PURHOECO) (previously completed).

The figure below shows the new radar installation and protection during construction:

Figure 10: Purgatoire River At Fishers Crossing

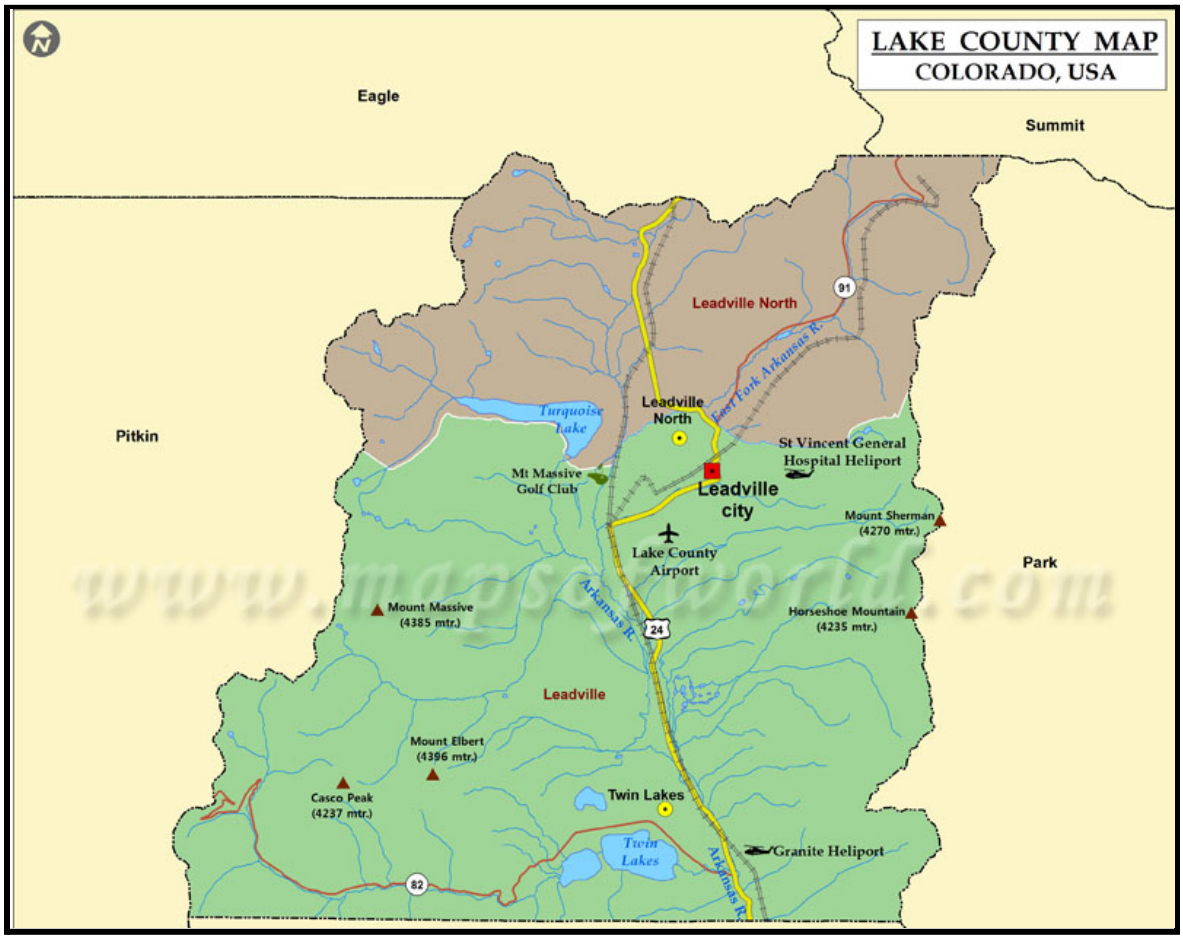
4 Community Involvement

4.1 Lake County Blanket Augmentation Plan- Augmentation Station Installation

In 2017 a blanket plan for Augmentation (98CW0173) for Lake County, Colorado was decreed. The case was originally filed in 1998 and had been through several amendments and multiple County Commissioners. The plan provided an opportunity for residents of Lake County to join the plan to cover depletions for small, non-exempt well uses, pond evaporation and surface diversions such as actions by the county like dust suppression activities by the road and bridge crews. However, the plan had not been fully implemented as it relies in part on contributions of augmentation water from the changed Derry Ditch No. 3 water right. This right derives its supply from Corske Creek, at a point located near the trailhead of the popular hiking trail to Mt. Elbert. This location is on Forest Service property and the installation of the augmentation station has been several years in process, due in part to a very short construction season and permitting and budgeting constraints. The 2020 pandemic travel restrictions again did not facilitate work on the structure in early 2020.

However, Division 2 Hydrography staff and the District 11 Water Commissioner/Augmentation coordinator, worked collaboratively with Lake County to review and approve the design as well as oversaw construction of the augmentation station in late October 2020. In some ways, the timing of the installation was actually fortuitous as by the time the stilling well was in place, advancements in radar technology were available such that this augmentation station was one of the first in Division 2 to receive a new radar device that is approximately the size of a soda can, is relatively cost effective and which helps streamline projects such as these with the ease of installation. This data will be very useful in the 2021 irrigation season and ongoing as Lake County is relying on this source of supply, initially to offset the depletions of the Mount Massive Golf Course well pumping under their Rule 14 plan. Excellent work was done by Division 2 staff on this project and others where, like here, the location is so remote that otherwise, the ability to verify and rely on this type of data for real-time replacement would be very limited.

Figure 11: Lake County Area Map



4.2 Critical Work with Town of Aguilar and Round Mountain Water & Sanitation

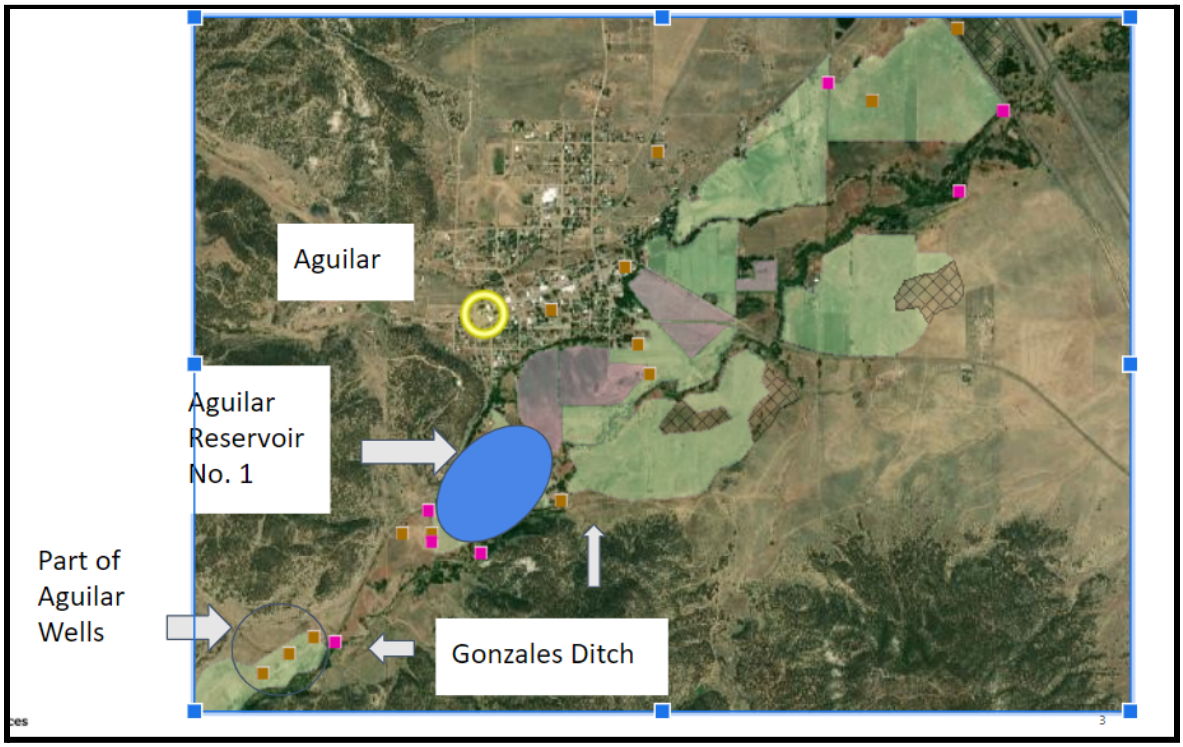
In 2020 Division 2 Assistant Division Engineers Rachel Zancanella and Lori Lest worked with Brian Sutton, Decreed Augmentation Plan Coordinator and local Water Commissioners, Jeff Montoya, Doug Brgoch and Jerry Livengood to address failing or potentially failing augmentation plans that represented risk of injury to other water rights. These two situations involved vastly different levels of cooperation and responsiveness from the two communities (note the Round Mountain Water & Sanitation serves Westcliffe and Silver Cliff and surrounding areas).

The Town of Aguilar filed a water court case in 2005 seeking to use the Gonzales Ditch as a source of replacement water in a plan for augmentation for the town to allow the out of priority diversion of the wells that supply municipal water to the Town. However, the Gonzales Ditch is a seasonal water right and therefore the Town was required to construct a reservoir in order to store some of their consumptive use replacement water during the irrigation season in order to enable them to make winter time replacements. When the 05CW0103 case was finalized, it contained a series of terms and conditions that the Town of Aguilar was required to meet under the "Phase-In Period".

Under the terms and conditions of the decree Aguilar had key milestones they had to meet beginning in 2015 in order to ensure the long term integrity of the plan for augmentation. The primary objective of these milestones was a small storage reservoir that allowed consumable credits from the Gonzales Ditch to be stored for release as needed over the winter and anytime the water available to the Gonzales Ditch was short. Aguilar failed to meet virtually every deadline in the decree and Division Engineer's orders were issued pursuant to the decree to curtail all outside watering. We have more recently discovered that Aguilar did very little to inform their citizens of the curtailment orders (Town Council members didn't even know) and it is clear that strong action is required to remedy this situation. A request for legal services was submitted and Chris Stork with the Attorney General's Office was instrumental in helping us prepare for action to be taken under retained jurisdiction pursuant to the decree.

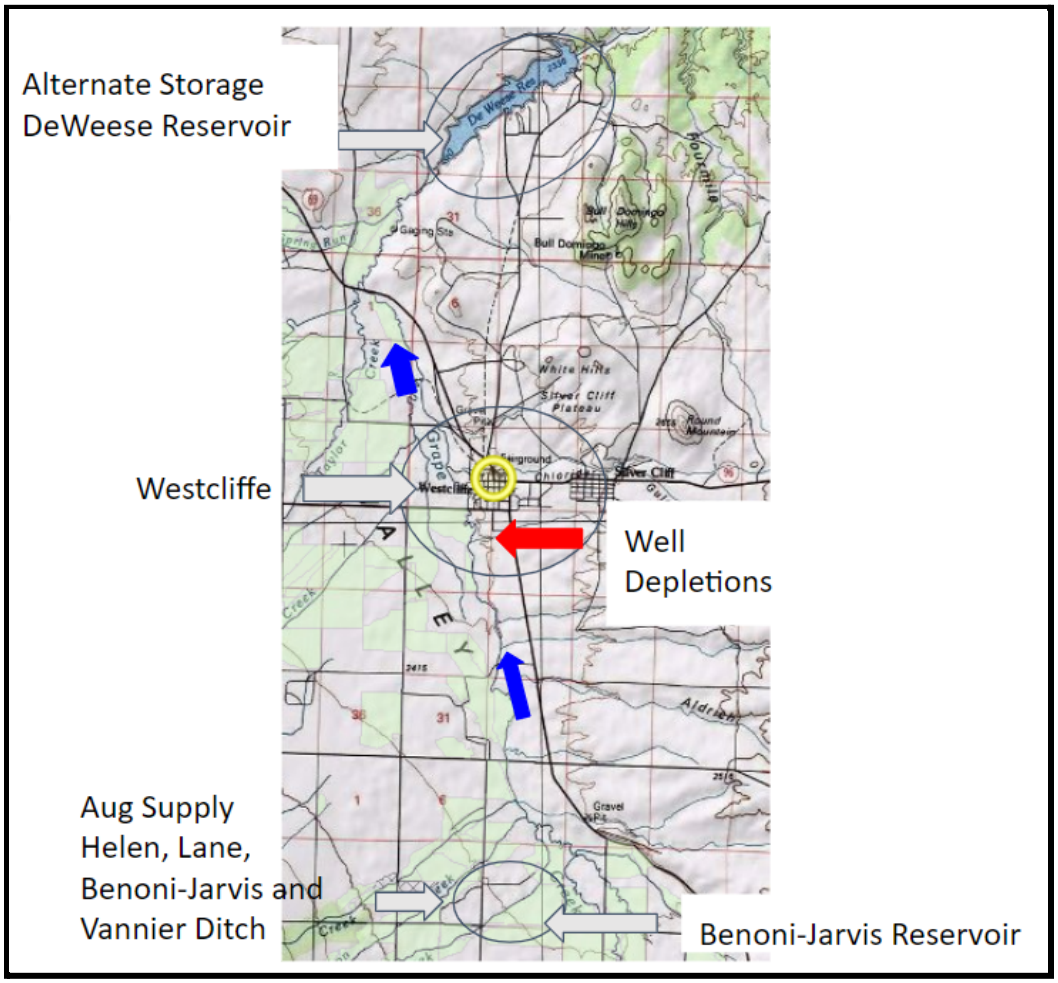
Additionally, Brian Sutton, Jeff Montoya and Doug Brgoch worked together to identify short term options for Aguilar to avoid further injury to other water rights and prepared an Action Memo that sought to help Aguilar think through options for short term compliance until the long term remedy of a storage vessel can be achieved. The solutions and questions for Aguilar's consultants they identified were carefully thought out and incorporated the possible cooperation with Evergreen Resources, a large energy producer that relies on Aguilar's augmentation supplies to replace depletions from coal bed methane wells along the Apishapa River. Although this situation was not resolved in 2020, we are hopeful that the intense effort will result in a successful conclusion in 2021.

Figure 11: Town of Aguilar Area Map



The efforts with respect to Round Mountain Water & Sanitation in Westcliffe, Colorado were quite successful and quite different from the interaction with Aguilar. Round Mountain also had an augmentation plan that could have potentially failed in 2020 (and had partially failed in a couple of prior drought years) because a key storage reservoir and pipeline had not been constructed. Jerry Livengood and Lori Lest worked with the manager of Round Mountain and with their engineering consultant (Lamp Rynearson) to craft an emergency SWSP that was approved for operation in 2020. Fortunately, streamflow conditions that would have necessitated the operation of the SWSP ended up not occurring in 2020, but Round Mountain now has an action plan in place as they work towards construction of the key reservoir that will make this plan effective for the future.

Figure 12: Westcliff and Round Mountain Area Map



5 *Highlights of 2020*

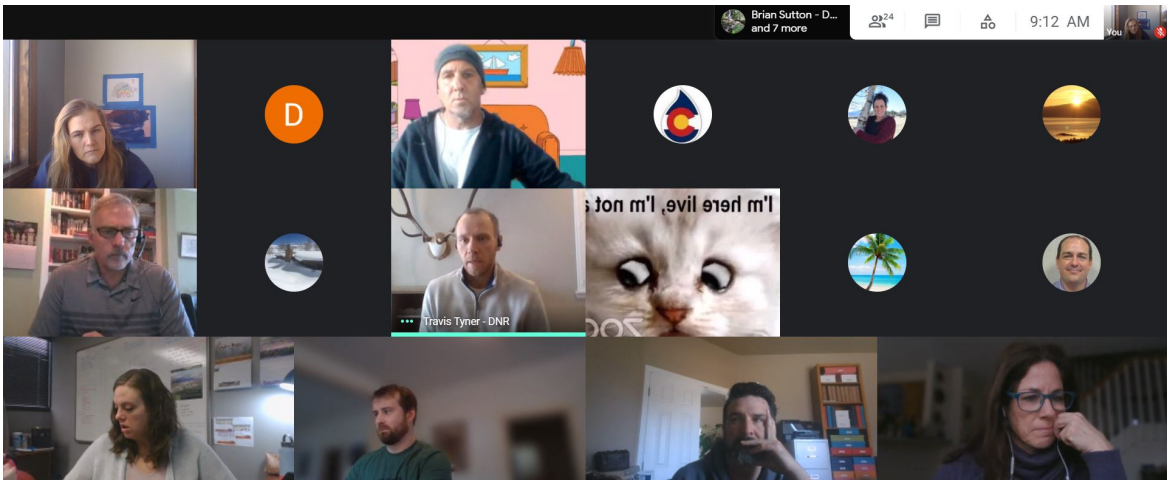
5.1 Augmentation and Reporting Team Efforts

After the initiation of the Augmentation and Reporting Team in 2019, it was determined through the efforts of this group that a key aspect of progress on this front would be coordination with the State Engineer's Office- Water Information Team (SEO WIT) on incorporating and developing tools in Hydrobase to facilitate these efforts. It was also determined that the issues facing Division 2 to track and administer decree requirements were not unique to Division 2 and in fact present the need for a significant area of improvement for many Divisions around the State. Therefore, in an effort to coordinate the development and implementation of this program, a Statewide Augmentation Steering Committee was formed under the direction of Deputy State

Engineer, Tracy Kosloff and, moving to a fully online presence, met for the first time on April 9th, 2020 and another five times in 2020 and ongoing.

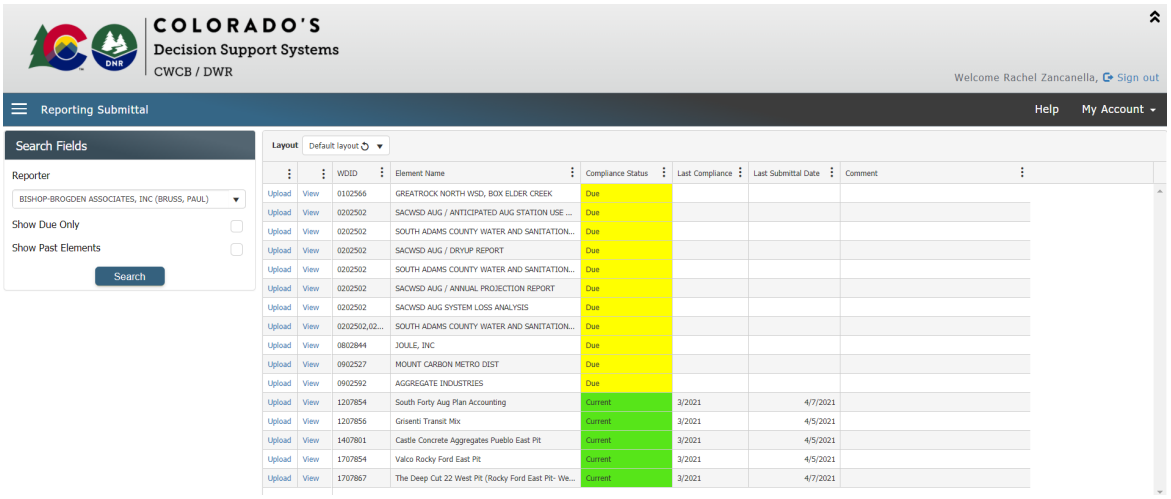
An example of what became the normal method for meeting in 2020 is demonstrated by the screen capture of the Augmentation Committee below:

Figure 13: Augmentation Steering Committee Virtual Meeting



Through the work of this committee, great strides have been made in 2020 to design and implement online reporting accounts for consultants and water users to submit accounting monthly, or as often as is needed, that is specific to the plans to which each individual user is associated. This system indicates for the user when accounting is due or overdue and soon will allow for correspondence directly through the system to convey if accounting is late or missing etc. An example of this online user portal is shown below.

Figure 14: Accounting/Reporting Submittal Tool Screenshot



This functionality has been especially useful in that along with indicating which plans have accounting due, the files are automatically uploaded directly into laserfiche for

permanent document retention. Continued efforts in this arena include development to the system to allow users to submit other documentation in the same manner with varying due dates and document types. Examples include annual projections for augmentation or native right yields, documents associated with annual dry-up acerage, continued irrigation, and short and long term water leases, among other items. These items, based on the specific language of each decree, require the Division of Water Resources to receive and administer, but until now, did not have a systematic method for doing so, or a standardized means of filing such information that was received. Future developments for 2021 will include expanding the document types acceptable from word documents, pdfs, excel spreadsheets and photos, to include mapping shapefiles in an effort to streamline the intake of information related to reported acreage like dry-up, lease fallow or irrigated acres etc. Other efforts of the committee include standardizing Statewide with respect to Augmentation as related to accounting standards, dry-up acreage and small augmented well reporting that includes data submittals more extensive than meter readings, such as variable depletion data like square footage irrigated, and number of head of livestock, etc.

The Division 2 Augmentation and Reporting team will also continue efforts in 2021 to implement a system for ensuring administrative timelines are met. Such as deadlines related to deliverables associated with Compact Compliance, though these efforts are ongoing. See the 2019 Augmentation and Reporting section for a complete list of currently identified areas of interest.

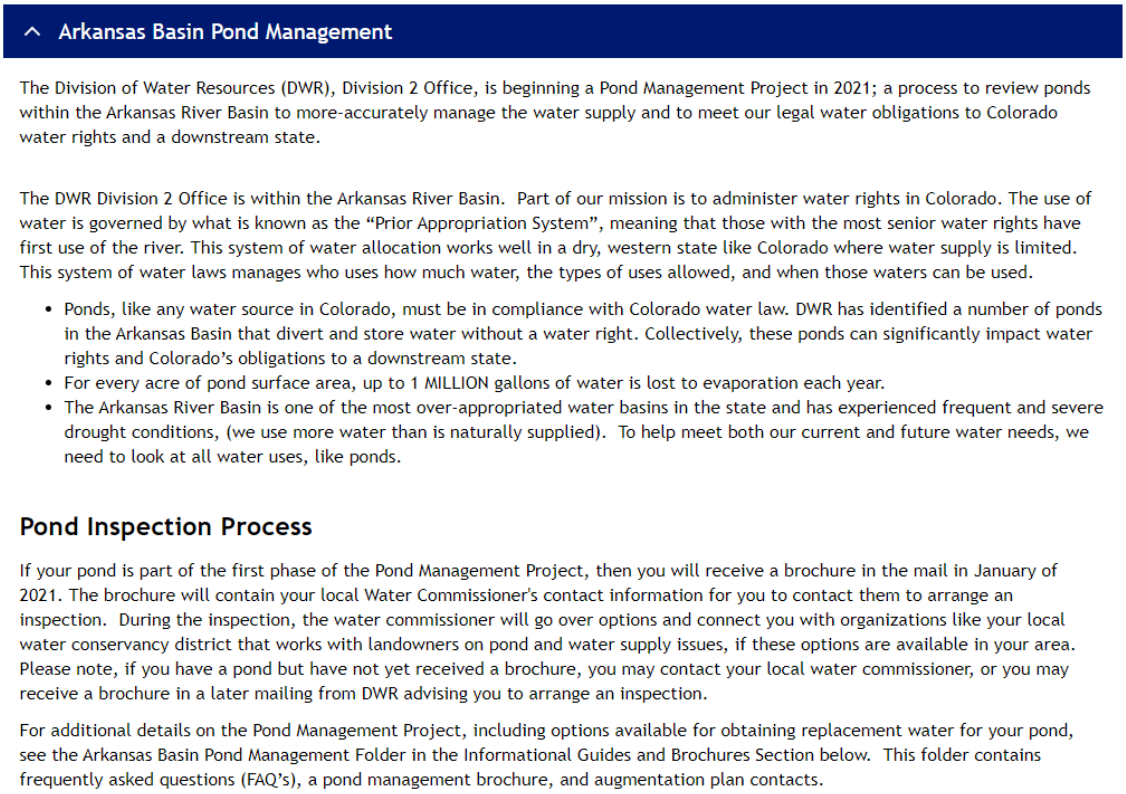
5.2 Pond Management Program

During 2020 a significant amount of effort went into communication related to the Division 2 Pond Project. The communication included efforts to bring DNR Director Dan Gibbs up to speed on the project by working with Chris Arend, DNR Communications Director and Alice Cosgrove, DNR Legislative Liaison as well as Kevin Rein. Additionally there was a tremendous amount of work associated with pond owner and public facing communication tools. Lori Lest, Rachel Zancanella and Wendy Hunker played critical roles in this collaboration. The interplay with establishing an acceptable communication framework pushed the project timeline out from the initially intended launch date of November 2020 to a later launch date in January 2021.

Advanced notice emails were sent out to conservancy districts throughout Division 2 and to augmentation providers and several presentations have been given to various groups (Arkansas Basin Roundtable, Fountain Greenway and Flood Control District, Fremont County Cattlemen's Association, Southeastern Colorado Water Conservancy District) in an effort to get word out of the impending effort.

Substantial work was done to coordinate communication via the DWR website resulting in the webpage below for Division 2.

Figure 15: DWR Website Division 2 Pond Management Page



Arkansas Basin Pond Management

The Division of Water Resources (DWR), Division 2 Office, is beginning a Pond Management Project in 2021; a process to review ponds within the Arkansas River Basin to more-accurately manage the water supply and to meet our legal water obligations to Colorado water rights and a downstream state.

The DWR Division 2 Office is within the Arkansas River Basin. Part of our mission is to administer water rights in Colorado. The use of water is governed by what is known as the "Prior Appropriation System", meaning that those with the most senior water rights have first use of the river. This system of water allocation works well in a dry, western state like Colorado where water supply is limited. This system of water laws manages who uses how much water, the types of uses allowed, and when those waters can be used.

- Ponds, like any water source in Colorado, must be in compliance with Colorado water law. DWR has identified a number of ponds in the Arkansas Basin that divert and store water without a water right. Collectively, these ponds can significantly impact water rights and Colorado's obligations to a downstream state.
- For every acre of pond surface area, up to 1 MILLION gallons of water is lost to evaporation each year.
- The Arkansas River Basin is one of the most over-appropriated water basins in the state and has experienced frequent and severe drought conditions, (we use more water than is naturally supplied). To help meet both our current and future water needs, we need to look at all water uses, like ponds.

Pond Inspection Process

If your pond is part of the first phase of the Pond Management Project, then you will receive a brochure in the mail in January of 2021. The brochure will contain your local Water Commissioner's contact information for you to contact them to arrange an inspection. During the inspection, the water commissioner will go over options and connect you with organizations like your local water conservancy district that works with landowners on pond and water supply issues, if these options are available in your area. Please note, if you have a pond but have not yet received a brochure, you may contact your local water commissioner, or you may receive a brochure in a later mailing from DWR advising you to arrange an inspection.

For additional details on the Pond Management Project, including options available for obtaining replacement water for your pond, see the Arkansas Basin Pond Management Folder in the Informational Guides and Brochures Section below. This folder contains frequently asked questions (FAQ's), a pond management brochure, and augmentation plan contacts.

The launch of the Pond Management Program in Division 2 included targeted mailings to pond owners located within top priority areas in each region of Division 2 as shown on the following four maps.

Figure 16: Selected Basins for Pond Management Efforts in the Lower Basin

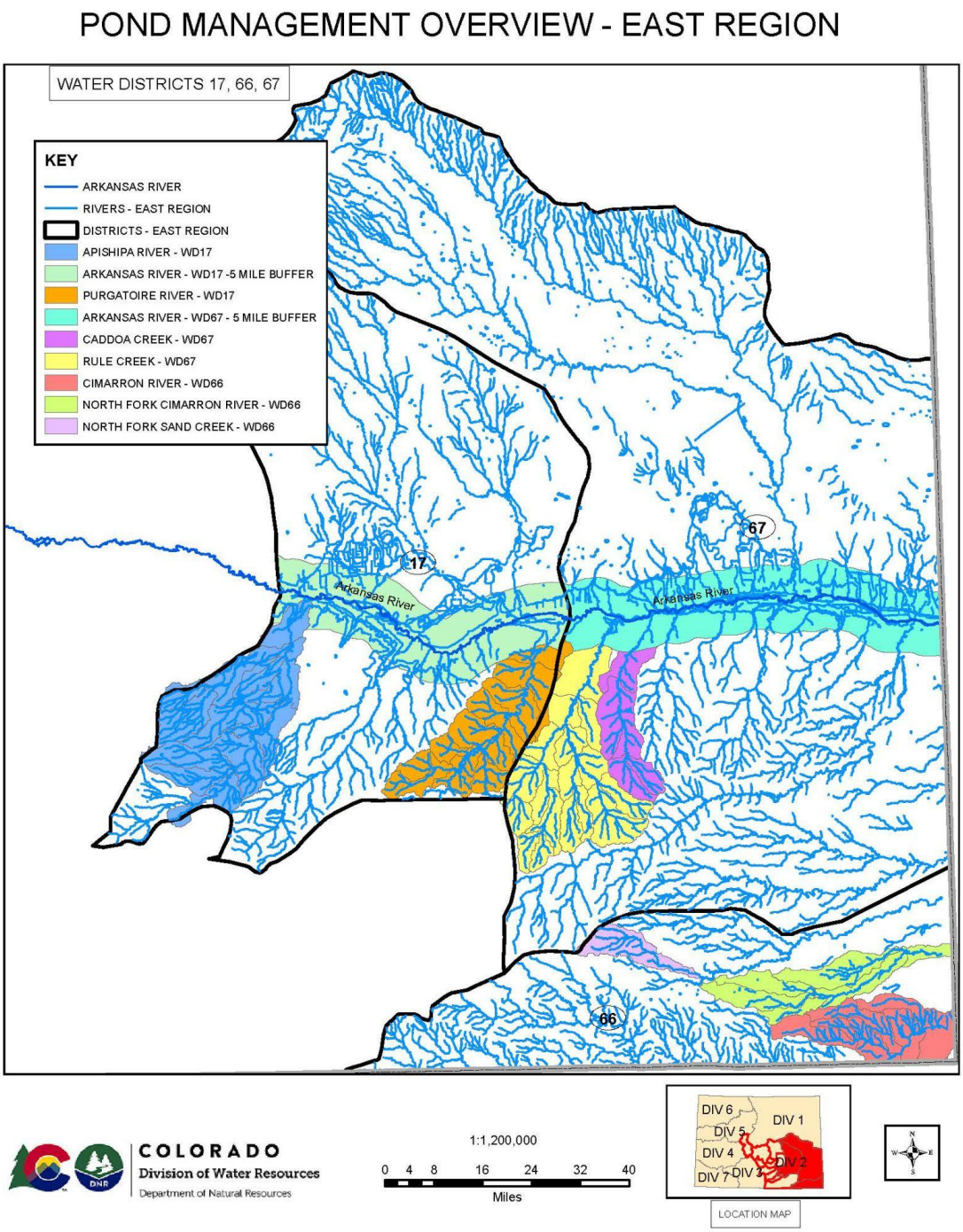


Figure 17: Selected Basins for Pond Management Efforts in the North Central Areas

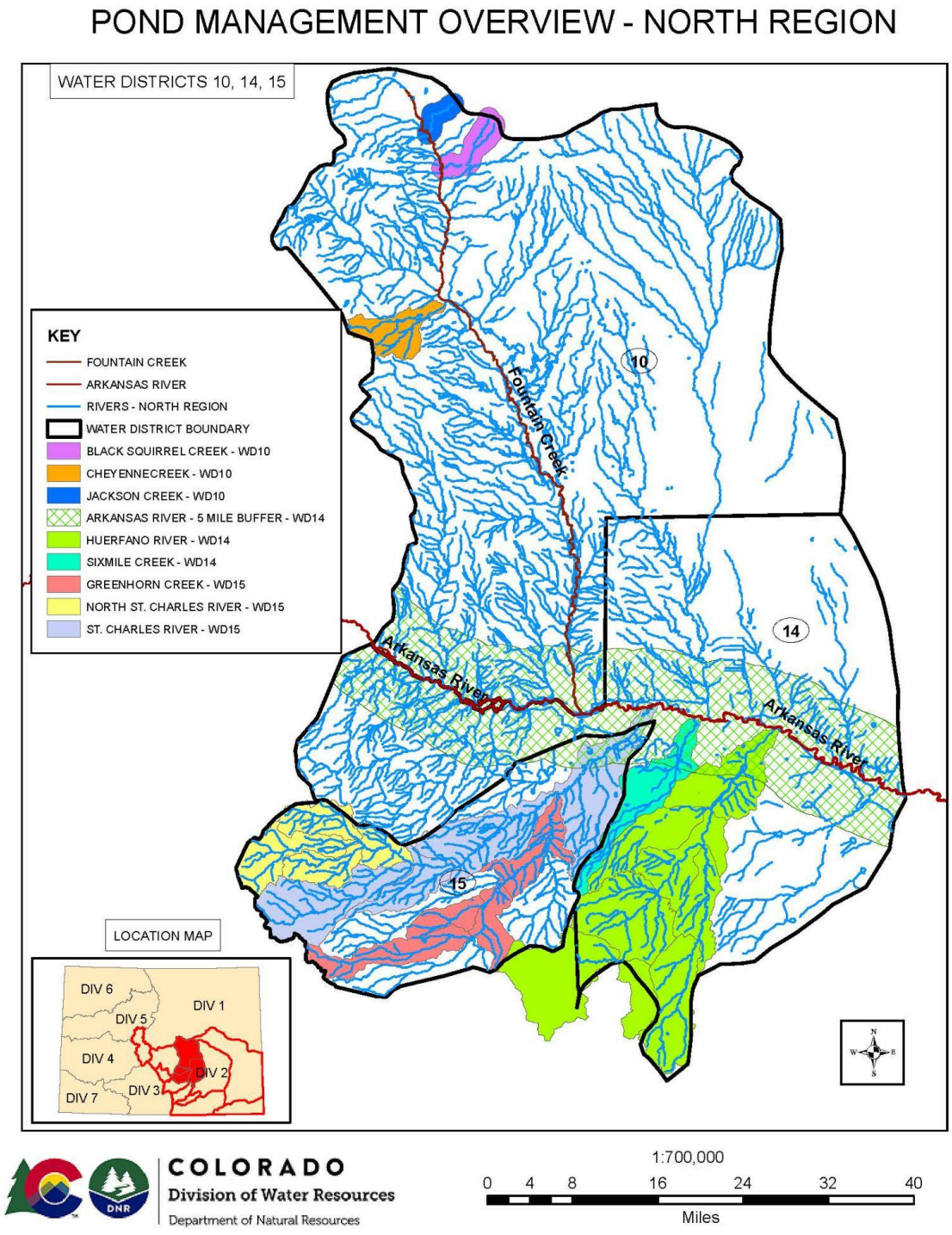


Figure 18: Selected Basins for Pond Management Efforts in the Southern Water Districts

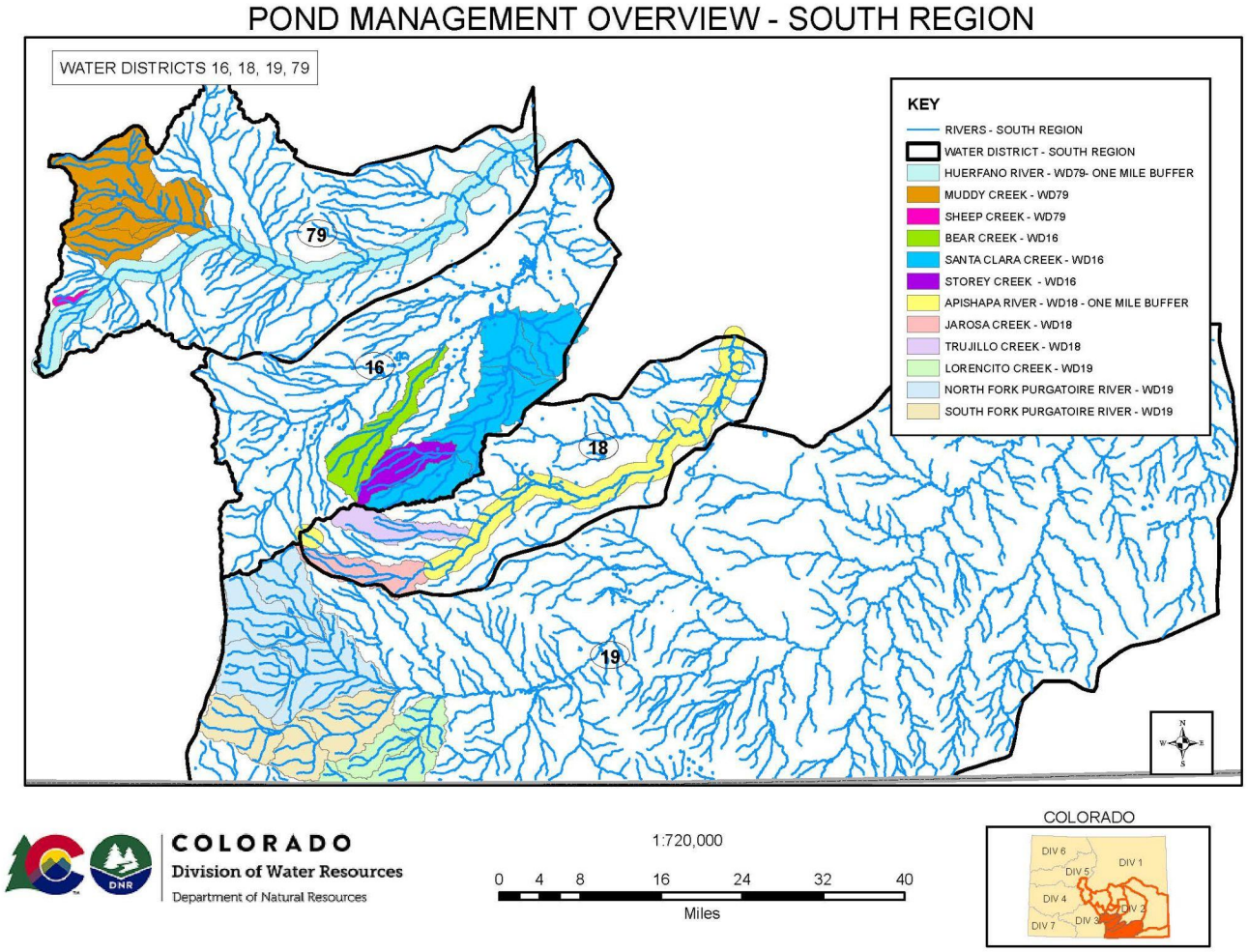
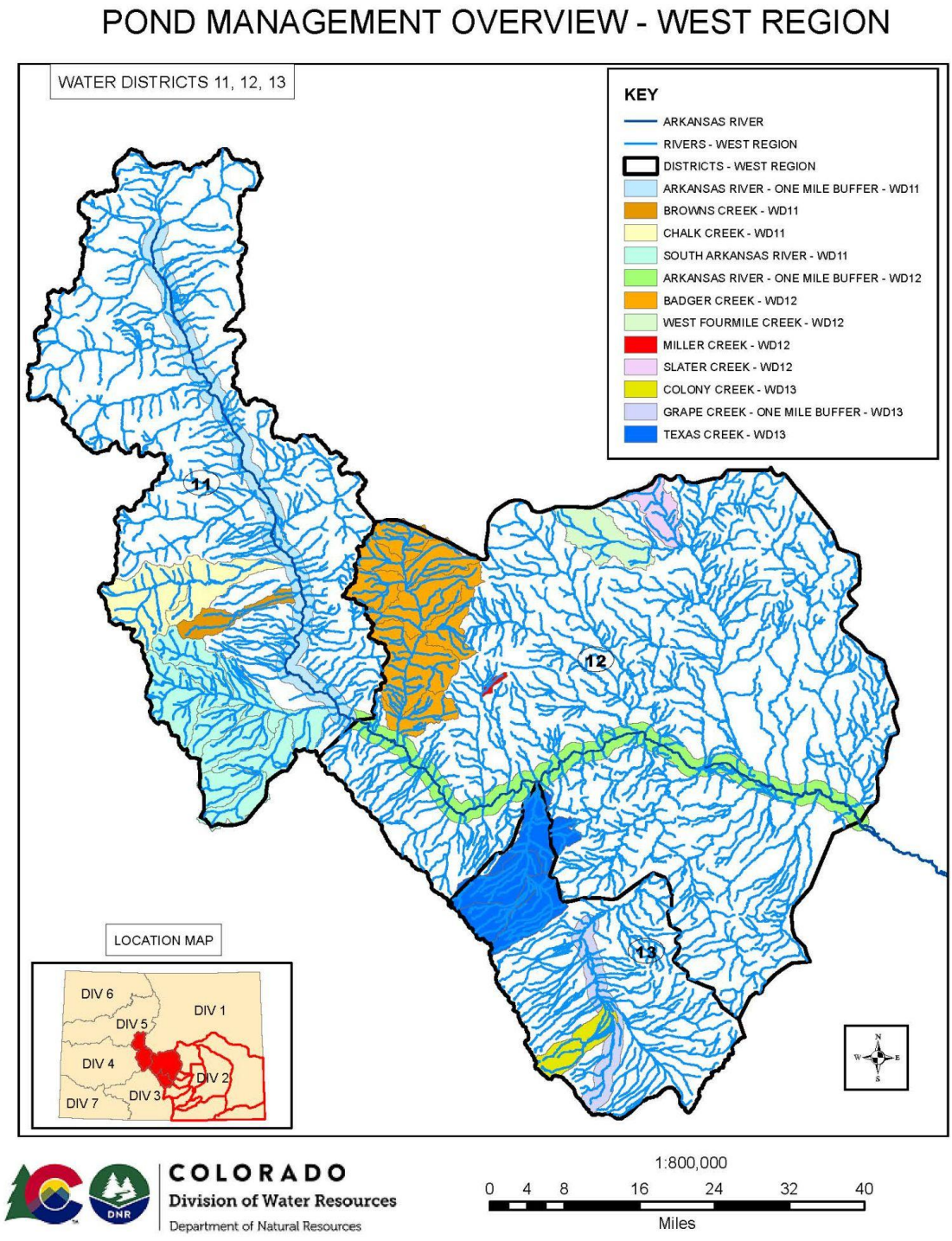


Figure 19: Selected Basins for Pond Management Efforts in the West Basin Area



The initial mailings to pond owners totaled 129 brochures mailed out to pond owners with 223 ponds. The brochures were mailed in several batches between January 14th and February 19th. The brochures sought to have pond owners contact local Water Commissioners to set up meetings regarding the ponds and options for the owners. Only 27 responses were received by Water Commissioners from this initial brochure mailing so follow up letters were sent certified on April 14, 2021. Additionally, 86 additional first contact brochures with letters were sent to pond owners that same date. The total number of ponds involved in the first phases of communication is 363.

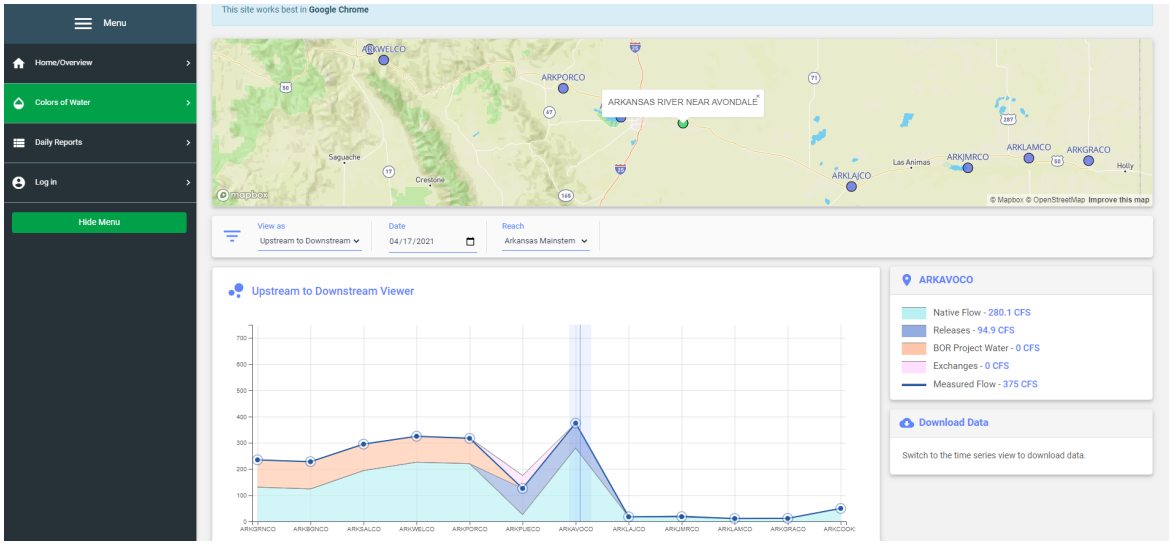
5.3 Update on Arkansas Decision Support System (ARKDSS)

In collaboration with the CWCB and multiple consultants including Brown and Caldwell, Wilson Water Group, LRE Water and HRS Engineering, the Division of Water Resources has been working to implement the Arkansas Decision Support System (ARKDSS) over the last several years after initial stakeholder input from the Arkansas Basin Round Table. These efforts have been extensive and ongoing and more information regarding the project can be found on the CWCBs website. However, a focus of these efforts has been on administrative tools to aid in the daily tasks within the purview of the Division 2 office. In 2020 this work continued and included finalizing of Water District Memos and straightline diagrams, review and correction of historic well pumping data used in base modeling, as well as work to implement administrative tools with potential for Enterprise level implementation such as the Alluvial Depletion Analysis Tool (ADAT) and Colors of Water tool.

ADAT will improve the efficiency and effectiveness of relating well head depletions and transbasin return flows to the time, location, and amount of their impact on the stream. In addition to the amount of replacement supply, track whether the supply is native or transbasin in character and, if transbasin, whether the origin of the supply was native Arkansas River fully consumable water or transbasin return flows. It would also identify a mechanism that allows for the application of specific operating rules regarding limitations on which replacement supply can be used for which wellhead depletions.

The Colors of Water Tool was initially included as part of the ARKDSS Administrative Tools Phase I task, and was developed as a tool that displays use and/or ownership of water at key gages on the mainstem Arkansas River from Granite to Granda, CO. This tool is located online at: http://div2waterops.com/ColorsOfWater and is shown below:

Figure 20: Arkansas River Dashboard and Colors of Water Tool Screen



The tool uses data from DWR Division 2 operational spreadsheets, USGS and DWR gage data, and simple estimates of transit time and loss. It is hosted in a consultant's tech stack using a combination of Google Sheets, Drupal, and JavaScript. The "Arkansas River Colors of Water and Forecasting Tool" will build upon the successes of the earlier tool by increasing the spatial and temporal resolution of the tool, incorporating modeling and forecasting of transit time and loss, and better assimilating within the HydroBase framework. These changes will enhance the usability of the tool for water users as well as create a platform for a Colors of Water and Forecasting Tool in other Colorado basins. This platform will be portable to other Colorado basins because the underlying data structure will be HydroBase and the technology leveraged will be maintainable by the State of Colorado Department of Natural Resources' Office of Information Technology (DNR-OIT).

6 *Organizational Changes*

Numerous personnel changes occurred throughout the year, and the year ended with a significant number of vacancies.

Retirements included Dale Baker (groundwater), Donna Smith (administrative assistant) and Kathy Trask (well data management).

Resignations were submitted by Ryan Canterbury (WD12 deputy water commissioner), Vanessa Indarte (WD18 deputy water commissioner) and Lenna Rauber (WD79 water commissioner).

New hires included Joe Regur (augmentation coordinator), Kain DiRezza (groundwater), Laurie Assemany (temporary WD12 deputy water commissioner), Matthew Arant (temporary WD18 deputy water commissioner).

Due to the pandemic all vacancy filling was put on hold due to uncertain tax revenue and the impact to the budget.

Reorganizational changes included moving Ina Bernard under the Litigation work group and the augmentation coordinator position to the Engineering Operations workgroup.

Training/Staff Development

Employee training/educational opportunities include the following:

- January 2020 - Colorado Water Congress attended by Bill Tyner and Rachel Zancanella
- April 2020 - Geospatial Training (on demand live) attended by Janet Dash
- August 2020 - Women Leaders in Government attended by Rachel Zancanella

CWOA

Was to be hosted by Division 4 but was cancelled due to the pandemic.

Budget & Pay

Division 2's operational budget again remained the same at $195,054. We received word to buy only what was necessary due and the division turned back approximately $38,000.

The budget allocation for Fiscal Year 2021 was based on a Zero Based budget approach and our allocation was $20,687 less than previous years.

Pay for Performance was once again unfunded. Salary Survey was also not funded. Furloughs were enacted and the number of furlough days required of each employee was based on yearly salary brackets as follows:

Table 5: Furlough Days Schedule

Lower Salary Band	Upper Salary Band	Number of Days	% of Overall Salary
$0	$50,000	0	0.0%
$50,000.01	$70,000	1	0.4%
$70,000.01	$90,000	2	0.6%
$90,000.01	$140,000	3	1.2%
$140,000.01		4	1.5%

Overtime was paid for by Denver's funds and was allocated on a month by month basis.

Vehicles

Two new vehicles were received this year. We were unable to acquire any temporary vehicles but did get a loaner vehicle from Denver that was not being driven during the Work from Home period.

Awards

Brandy Cole was named Water Commissioner of the Year.

Above and Beyond Awards were given to Gary Peltack.

Bricks and Mortar Awards were given to Monica Long, Janet Dash and Wendy Hunker

Cheers for Peers were given to Doug Hollister, Jessica Wodiuk, Lonnie Spady, Joey Talbott, Jeff Montoya, Martha Archuleta, Monica Long, Russ Dash, Janet Dash, Ina Bernard and Kaleb Dunn.

Other notes of interest

The Covid 19 Pandemic resulted in most office staff being relocated to home on March 16, 2020. The few remaining staff working in the office were ordered to Work from Home on March 27, 2020. Remote work and Work from Home was evaluated a number of times but remained in full effect through December 2020.

Governor Polis granted a Governor's Holiday on December 24, 2020.

Executive Director Dan Gibbs created an Admin Leave Wellness Day for employees to be used for wellness related activities.

During 2020 Division 2 was significantly impacted by the inability to fill vacant positions. At the start of 2020 Division 2 had three vacancies. Two of those vacancies were able to be filled by temporary employees prior to the budget reductions and were able to complete short assignments that helped us get through the irrigation season. These three positions are shown in red on Figure 21. Early in 2021 the organizational chart shown in Figure 22 reflects the significant impact of retirements and departures on the Division 2 workforce. These positions are shown in red also. We were able to fill one 2020 vacancy with the transfer of Will Scott from Division 1 to the Water District 11 position. That position is shown in green. Additionally, Jessica Wodiuk was able to be extended from a half time position to full time to fill the Donna Smith retirement vacancy and that position is shown in orange.

Figure 21: Division 2 Organizational Chart Beginning of 2020

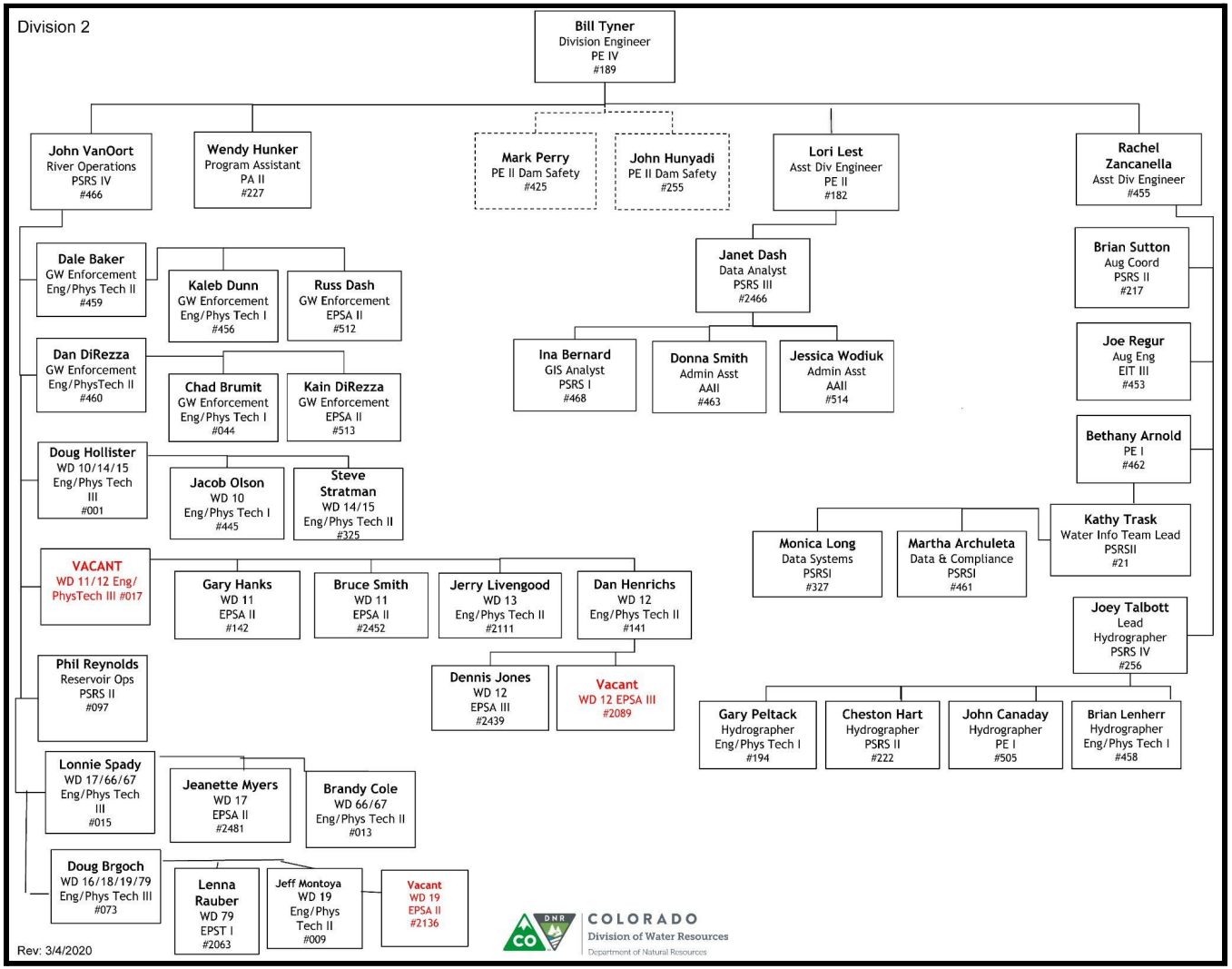


Figure 22: Division 2 Organizational Chart Beginning of 2021