

2021 Water Supply Conditions

Below average snowpack, below average precipitation, and dry soils combined to produce a rather unpromising outlook for the runoff season in April through July 2021. The scarcity of precipitation during April through October 2020 was further exacerbated by continued below average precipitation during the snow accumulation months of October through December 2020. These precipitation deficits set up a similar situation as last year where the first snows of the winter fell on parched ground. The dry soil conditions play a very meaningful part in the runoff season as the ground absorbs much of the first pulse of meltwater during snowmelt. Predicting the impact that soil moisture will have on runoff totals is not well defined by runoff models and therefore is not 100 percent predictable, but the impacts are anticipated by runoff modeling each season. Much needed precipitation fell in late January and most of February which helped to relieve some of the woes of the previously poor water supply year. However, snowpack conditions throughout the basin stayed below average the entire winter and early spring. Precipitation for April was only 34 percent of average and the runoff started very early, prior to April 1st. By May 1st, snowpack in the Gunnison Basin was only at 53 percent of the median. The 2021 runoff season was a stark example of how critical the pre-winter soil moisture conditions affect the April through July runoff totals. There were a number of NRCS climate stations in the Gunnison Basin that ranked the driest in precipitation for the April through October 2020 period, and all of the climate stations were ranked in the top three driest recorded periods. There are three major water basins the Gunnison Basin, the Uncompahgre River, the North Fork Gunnison River, and the Upper Gunnison River basins. Even though the basin wide snowpack peaked at 87 percent of the median, due to the extremely dry antecedent soil moisture conditions, the runoff was dismal at only 47 percent of average in the Upper Gunnison, 54 percent of average in the Uncompahgre, and only 33 percent of average in the North Fork Gunnison River.

Water Supply Recap for 2021 by Basin

The Upper Gunnison and the Uncompahgre Project

The April through July forecasted inflow to the Aspinall Unit (Blue Mesa, Morrow Point, and Crystal Reservoirs) as of May 1st was only 450,000 acre-feet. However, as explained above, the actual measured April through July runoff, based on streamflow gage records, was only 387,000 acre-feet, or approximately 57 percent of the 30-year median seasonal average, categorizing the season as a “Moderately Dry” year for storage management purposes under the Record of Decision for the operation of the Aspinall Unit. Moderately Dry year categorization for Aspinall Unit requires releases to achieve a peak flow target in the Lower Gunnison of 3,167 cfs and reduces baseflow target flows as measured at Whitewater to 890 cfs for April and May. Also, forecast inflow at this level only results in a 2,200 cfs peak in the Black Canyon based on calculations in the reserve water right decree for the Black Canyon National Park. Most of the tributary streams in the Upper Gunnison Basin experienced 45 to 65 percent of average April through July runoff in 2020.

The Uncompahgre Valley Water Users Association (UVWUA) began diverting water into the Gunnison Tunnel point of diversion on March 17th and ramped up to their full diversion of 1,000 cfs on April 13th. Demand for water from irrigators was high early in the irrigation season, therefore, diversions at the Gunnison Tunnel exceeded the available natural inflow into the Aspinall Unit for approximately two weeks. This has resulted in what is termed the April hole, which resulted in the UVWUA to use storage water from their Taylor Park Reservoir first fill storage account in the beginning of the irrigation season until the snowmelt in the high country begins to occur. Given the lack of native flow water in the stream systems due to the severe drought conditions, the UVWUA water managers relied heavily on storage water supplies in 2020 to keep pace with the demand. As a consequence, carryover storage at the end of the irrigation season within Division 4 was much lower than average.

The Grand Mesa

Water supply conditions went from full and spilling reservoirs during the runoff of 2019 to the lowest carryover storage on record on the Grand Mesa by the fall of 2020. As in 2018, at the beginning of the irrigation season, Tongue Creek and its tributaries (headwaters of which are on the Grand Mesa) was placed on call by demand from senior irrigation ditches down low in the system. Calls for water occurred on Surface Creek, Ward Creek and Dirty George Creek and were administered to the most senior 1883 priorities. By June 29, the number 1 water right for the Alfalfa Ditch was the only ditch in priority on Surface Creek. However, most of the reservoirs were entitled to store some of the runoff for a few weeks in 2020.

Given the challenge of managing the out of priority storage water administration, the Division of Water Resources created an administration spreadsheet tool that is shared with the public via the Division 4 webpage that uses measured gauge rod elevations to accurately determine the amount of out-of-priority storage that may occur during water short years on the Grand Mesa. This new spreadsheet tool has really improved the speed and accuracy of managing the storage decrees for this unusual number and concentration of irrigation reservoirs and helps to ensure that senior direct flow water right holders on the stream system below are not injured. There are still more plans to improve this accounting and administration with assistance through automation of collecting reservoir elevation data in the near future.

The North Fork River

The North Fork Gunnison River is formed at the confluence of Muddy Creek and Anthracite Creek. Paonia Reservoir is an on-channel Reclamation project reservoir on Muddy Creek just above the confluence. Paonia Reservoir normally dominates river operations on the North Fork River during irrigation season and the storage water accounts are owned by the Fire Mountain Canal Company and the Leroux Creek Water Users Association. In addition, the Ragged Mountain Water User Association, whose water users are located above Paonia reservoir tributary to Muddy Creek, leases approximately 2,000 acre-feet of storage by exchange. The Fire Mountain Canal relies on natural flow during the spring until the runoff season ends; then it relies on storage out of Paonia Reservoir. The North Fork of the Gunnison River is a highly over-appropriated stream system and it goes on call every year, even in big water supply years. Typical, the river call is initiated by the Fire Mountain Canal or the Paonia Ditch between the 4th of July and July 15. Similar to 2018, in 2021, the natural flow of the North Fork River was called out quite early in the season by the Paonia Ditch on June 22 and was followed by a more senior downstream call by the Short Ditch on July 9, 2021 and it continued until the August 17 when stream flows began to be boosted by monsoonal rains and ditches were turning off for harvesting.

The San Miguel River

In water District 60, the regular hydrologic pattern of seasonal monsoon rain events returned the summer of 2021 as was demonstrated by the hydrograph for the San Miguel River beginning in the last week of June. June started off very hot and dry as the runoff peaked and quickly waned. The stream flow gage at Placerville is a key indicator as to when a mainstem call by the Highline Canal can be imminent. However, a significant rain event occurred beginning June 24th and lasted for a few days, which brought up base flows in all of the tributaries of the San Miguel and the mainstem river call was avoided. Again, timely rain events occurred all summer, keeping the Highline Canal satisfied in a very poor April through July runoff season, which was only about 50 percent of average.

The Cone Reservoir and the Gurley Reservoir, which are privately owned and operated ditch and reservoir companies, did not fill their storage decrees and their systems were drastically short of water resulting in very difficult conditions for cattle ranchers in the area. Gurley Reservoir, which has a storage decree for approximately 9,000 AF, had a storage restriction placed on the structure due to a slip failure on the dam face in 2019. However, as in the previous two year, with water supply conditions being so poor, the storage was not limited by the restriction, but rather the lack of stream flow to fill the reservoir.

Groundwater Administration

The Well Permitting Program in Division 4 continues to provide timely issuance of exempt well permits. There were 373 well permits issued within Division 4 during the 2021 water year, that's up significantly from 268 in 2020. 329 of the 373 well permits were exempt well permits issued by Greg Powers, the well commissioner for Division 4. The remaining 44 non-exempt permits were issued by the Divisions 4, 5, and 6 Team staff out of the Denver Division of Water Resources Office. The Division 4 Office will continue issuing exempt well permits for the foreseeable future. The numbers by water district for well permits issued in 2021 was consistently increased for each water district across the whole Division.

As all exempt well permits in Division 4 were issued out of the Montrose office, staff has spent a considerable amount of time identifying and correcting information in the well permit database. The Well Commissioner has also undertaken several GIS projects involving this database that is proving very useful in getting parcel information from the counties in a useable form and moving toward replacing the hand drawing process on the paper maps. Use of MapViewer has allowed the Well Commissioner to use GIS parcel data to easily identify parcels that are locked up with a permit. His use of GIS data continues to expand to make him more efficient in approving and tracking well permit applications.

There was contention in Water District 60 regarding a claim by a complainant that 13 well permits were incorrectly issued and should be revoked. This matter went before the Hearing Officer in Denver and it was concluded that the permits in question were indeed issued correctly by Greg Powers.

Hydrographic Activities

Division 4 has thirty-three Satellite Monitoring Stations (SMS) with forty-nine associated gages, an increase of seven additional SMS gages this season. Eleven of these gaging stations are record gages that are published annually. The data from these stations may all be found on the *Colorado's Surface Water Conditions* web site. We cooperate with the US Bureau of Reclamation at four sites and publish two of these. Josh Kasper has assumed full hydrographic support for this Division. With the assistance of several Water Commissioners, Josh maintains the eleven published gages, thirty eight administrative gages and keeps satellite monitoring equipment maintained. In 2021, a total of 141 measurements and 174 gage visits were made by Josh Kasper, Jason Ullmann (Assistant Division Engineer).

Personnel

Thankfully, there was one retirement in 2021, Scott Frost, the Ward and Kiser Creek Reservoirs position on the Grand Mesa. As of this report, the vacancy is not filled and we will likely have to fill the position with a temporary posting until the position can be advertised to the public. In addition to this vacancy, we also need to fill a couple of vacancies left by some volunteer separation from State service. Denise Jackson left her position in Water District 40 to return to the Grand Mesa Water Users Association. John Walker resigned from the Surface Creek Reservoirs position on the Grand Mesa. Finally, the Assistant Division Engineer, Jason Ullmann accepted a promotion to a vacant Deputy State Engineer position. We wish Jason all the best of success in his new role for the Division of Water Resources. The Division was able to fill Jason's vacancy from the outside with an experience engineer in Gregory Brown. Greg is an excellent addition to the Div 4 Team.

Community Involvement

Division 4 places a high level of importance of having respectful and trusting relationships with the variety of water use organizations and members of the community. Without such trust and respect, this office would have limited effectiveness. Division 4 appears to be somewhat unique, wherein the major water user groups work together with the government organizations for the betterment of the basin. It is a pleasure to be a part of that cooperation and to hold and maintain a position of trust in the water community.

Due to COVID-19 related restrictions on public meetings and gatherings, the Division 4 staff was less involved with our water users at a personal level. However, we see such interaction as an increasingly important part of our responsibility as water stewards. To this end, we frequently attended meetings via video conferencing with the Gunnison Basin Roundtable, Colorado River Water Conservation District, Upper Gunnison River Water Conservancy District, Tri-County Water Conservancy District, North-Fork Water Conservancy District, Uncompahgre Valley Water Users Association and its Board of Directors, Farmers Water Development, Surface Creek Ditch and Reservoir Company, Granby Ditch and Reservoir Company, Big Ditch Company and Park Reservoir Company and other water interest groups.

The Division Engineer attended similar online video meetings of the Colorado Water Conservation Board, Southwest Water Conservation District in Durango, US Forest Service, Bureau of Land Management, and the US Bureau of Reclamation. Not only is valuable input offered, there is an opportunity to be informed of many other basin issues potentially affecting this office. We all learned how to use Google Meet, Zoom, and Microsoft Teams platforms for hosting and attending online video conference held meetings.

Our public involvement included participation on the regularly scheduled Gunnison Basin Roundtable meetings held in Montrose, both for the Statewide Water Supply initiative, or SWSI, and the Interbasin Compact Committee. We have worked closely with both the Executive Director's Office of DNR as well as the Colorado Water Conservation Board in providing a local perspective of basin water issues. We helped identify existing water supplies and pointed out areas where future growth might be faced with water shortages. One of the most effective annual public meetings that has really helped to heighten the awareness of all things water related is the Colorado River Water Conservation District's annual "State of the Rivers" meeting which is held in most of the major watersheds each spring. The Division Engineer's participation includes a discussion on water supply and runoff conditions.

Jason Fuller and Sandy Ragsdale were able to stand in place for Division of Water Resources at the Natural Resource Festival held each May at the Riverbottom Park in Montrose. The event is an educational opportunity for students to learn about natural resource management. The events were cancelled for 2020 due to COVID-19 related conditions. However, the event was well attended in 2021.

Finally, many Division 4 Water Commissioners attend local water user meetings in their communities, a practice strongly encouraged by this office. As they are the local water experts in the area, they can provide local knowledge and valuable input.

2021
Division 4 Water Court Activities

Applications for Decrees	120
Consultations with Referee	122
Decrees Issued by Water Court	113
Dismissals	0
Complaints	0

	<u>Structures</u>	<u>Cases</u>
New Conditional Water Rights Filed	37	17
New Absolute Water Rights Filed	70	27
New Diligence on Conditional Rights Filed	98	54
New Change of Water Rights Filed	10	10
New Conditional to Absolute Apps Filed	32	18
New Augmentation Plans Filed	6	6
Cancellations of Conditional Rights	0	0
Underground Water Rights Adjudicated	53	21
Surface Water Rights Adjudicated	154	78
Water Storage Rights Adjudicated	96	37
Plans for Augmentation Adjudicated	6	6
Change of Water Rights / Use Adjudicated	16	9
In-stream Flow Rights Adjudicated	0	0