

2018 Water Supply Conditions

No two irrigation seasons are ever really the same. Normal or “average” is really a calculated number that we use to make data comparisons between years. For example, 2011 and 2012 were two of the more extreme back-to-back water supply years of record in Division 4. The water supply conditions could be best described as feast to famine. Another example of such disparity of water supply conditions occurred between the 2017 and 2018 irrigation seasons. Again, feast to famine. The snowpack conditions in 2017 were exceptional with over 125% of average snowpack conditions basin wide. 2018 was exceptionally dry with conditions at only 55% of average basin wide. There are three major water producing watersheds in the Gunnison Basin which include the Upper Gunnison (Blue Mesa), the Uncompahgre, and the North Fork Rivers. Turns out, the San Miguel River basin, which is also in Division 4, is tributary to the Colorado River in Utah and does not contribute to flow in the Gunnison River. Of the three sub-basins in the Gunnison Basin, the Upper Gunnison Basin experienced the best water supply conditions. Even so, 2018 was the fourth worst runoff into Blue Mesa Reservoir on record, just ahead of 1977, 2002, and 2012, with 238,000 acre-feet of actual April through July inflow (35% of average) into Blue Mesa.

The North Fork River basin fared much worse than the Upper Gunnison, with Paonia Reservoir receiving just 18,500 acre-feet of April through July inflow, which is only 19% of average! Water supply conditions in the Uncompahgre River basin were similar to the extreme in the North Fork River. Ridgway Reservoir received only 31,000 acre-feet of April through July inflow, which is approximately 30% of average. The hardest hit location within the Gunnison Basin was the Grand Mesa area, and specifically, Surface Creek. Surface Creek yielded only 2,700 acre-feet of runoff, the lowest ever recorded in the past 100 years. Finally, the San Miguel River consistently hit new lows as measured at the Placerville gage throughout the summer irrigation season. The lowest April through July runoff yield on record was 2002. However, 2018 was very close to that at only 27% April through July runoff. The hot and dry summer with little summer monsoon rains resulted in the lowest recorded stream flows in August and September at the Placerville stream gage.

Water Supply Recap for 2018

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 345,000 acre-feet. However, the actual measured April through July runoff, based on streamflow gage records, was only 238,000 acre-feet, or approximately 35 percent of the 30-year median seasonal average, categorizing the season as a “Dry” year for storage management purposes under the Record of Decision for the operation of the Aspinall Unit. A Dry year categorization eliminates requirements for Aspinall Unit releases to achieve the peak flow targets in the Lower Gunnison 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 1,000 cfs peak in the Black Canyon based on calculations in the reserve water right decree for the Black Canyon National Park.

The Uncompahgre Valley Water Users Association (UVWUA) began diverting water into the Gunnison Tunnel point of diversion on March 15th and ramped up to their full diversion of 1,000 cfs on April 16th. 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. This has resulted in what is termed the April hole, which has caused 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 2018 to keep pace with the demand. As a consequence, carryover storage at the end of the irrigation season within Division 4 was the lowest recorded since the Reclamation projects have been operational.

The Grand Mesa

Water supply conditions were so meager on the Grand Mesa, on April 2nd, 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. Flows in Surface Creek were so low due to the lack of runoff that only the number 1 water right for the Alfalfa Ditch was in priority. A call at these senior priorities this early in the season places the many reservoirs on those tributaries out of priority and unable to fill until the call is removed. As such, Division 4 Water Commissioners scrambled to record staff gage heights to determine reservoir levels at the time of call. When the reservoirs finally thawed, the Water Commissioners then released the out of priority storage to the stream for diversion by senior direct flow rights below. This was not a trivial exercise as there are 108 reservoirs on these streams on the Division 4 side of the mesa, with most of them being affected by the calls. The river call was released briefly during the peak of the runoff and the reservoirs were measured again to determine the out of priority storage volume to be released.

Given the challenge of managing the out of priority storage water administration, the Division of Water Resources created a new administration 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 occurs. This new spreadsheet tool really improved the speed and accuracy of managing the storage decrees for this unusual number and concentration of irrigation reservoirs.

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 natural flow of the North Fork River was called out by the Paonia Ditch on June 14 and was followed by a more senior downstream call by the Short Ditch on June 28, 2018, marking the earliest the Fire Mountain Canal has gone on storage water since the reservoir was constructed. The storage water supply was exhausted by the first week of August. Again, another record.

The San Miguel River

In water District 60, the San Miguel River was plagued with the same severe drought conditions as the Grand Mesa and the mainstem of the San Miguel River hit new lows during the months of August and September, as measured and recorded by the Placerville river gage for 82-years of record. The dominant water user on the mainstem of the San Miguel River is the Highline Canal. This ditch is owned and operated by the Colorado Cooperative Company and can divert 120 cfs of water with its multiple direct flow decrees. The Company was in a position to place a call on the river by the first week of April, but the realized that would not yield a benefit to their diversion and a mainstem call was postponed until June 29, 2018, thus allowing upstream junior reservoirs a chance for a brief filling period. 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.

Groundwater Administration

The Well Permitting Program in Division 4 continues to provide timely issuance of exempt well permits. There were 402 well permits issued within Division 4 during the 2018 water year, an increase from the 344 permits issued the previous year. In fact, we have seen a steady increase in the number of permit

applications since the low of 174 issued in 2011. Coincidentally, 344 of the 402 well permits were exempt well permits issued by Josh Kasper, the well commissioner for Division 4. The remaining 58 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. There was a surprisingly significant increase in exempt well permits issued within Water Districts 40 (primarily the North Fork Gunnison area) and 59 (Crested Butte area) in 2018. The number of exempt well permits held steady within the remainder of Water Division 4 as well.

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 Aquamap 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.

Hydrographic Activities

Division 4 has thirty-three Satellite Monitoring Stations (SMS) with thirty-nine associated gages, an increase of two 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. With the retirement of long time Hydrographer Jerry Thrush, Tony Arnett (transferred from Division 1) has assumed hydrographic support for this Division. With the assistance of several Water Commissioners, Tony maintains the eleven published gages, twenty-five administrative gages and keeps satellite monitoring equipment maintained. In 2018, a total of 105 measurements were made by Tony, Jason Ullmann (Assistant Division Engineer), Brian Boughton (Lead Hydro in Division 7) and the water commissioners that also assisted. 142 gage visits were recorded.

Division 4 has experimented with replacing Stage Discharge Recorders with Radar Water Level Sensors at several stations with excellent results. The radar units are more expensive than the SDRs but they require less maintenance and there are fewer electronic components associated with the system, which translates to less maintenance.

Personnel

The year 2018 brought several personnel changes within Division 4, largely due to retirements, which lead to a number of subsequent movements of personnel within the Division as a result. The lead Hydrographer, Jerry Thrush, retired after 28 years. Jerry has managed as the sole hydrographer in Division 4, with the assistance of several water commissioners that have been trained to make administrative measurements as needed or required. Tony Arnett from Division 1 filled Jerry's vacancy and brought to Division 4 good solid experience in the field and he will be able to lead the water commissioners that are assisting with Hydrographic duties. Janet Wolney, the water commissioner in Water District 61 (Paradox Valley) retired after twelve years of service and was replaced by Heather Harris, a resident of Paradox Valley. Doug Wist, began service with DWR in 2000 and became the lead water commissioner in the Cedaredge Field Office in 2011. Doug has experienced the years of plenty on the Grand Mesa (2005, 2008, 2011) and the worst of the worst (2002, 2012, and 2018). Doug's vacancy was filled by Dan Toothaker (also in Water District 40) who was able to take advantage of a promotional opportunity. Dan's vacancy was filled by a new recruit from the outside, Luke A. Reschke. Finally, Alfred Kasinger, who was hired in 2005 to be a reservoir administration water commissioner on the Grand Mesa, in the Granby Reservoirs area, retired after the irrigation season ended in 2017. It takes a special individual to operate the reservoirs on the Grand Mesa all season long. The work can be very long days in inclement weather in extremely rough terrain. Alfred will not be easy to replace and we will miss his "can do" attitude and easy going nature. His vacancy was filled in spring 2018 with a new hire from the outside, Adam Woodall.

Community Involvement

Past experience has revealed the extreme 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.

The Division 4 staff was greatly involved in 2018 with our water users and we see such interaction as an increasingly important part of our responsibility as water stewards. To this end, we frequently attended meetings of the 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, Overland Ditch and Reservoir Company, and other water interest groups.

The Division Engineer consistently attended 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.

Our public involvement included participation on the Gunnison and San Miguel Basin Roundtables, 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. Jason Ullmann and Sandy Ragsdale make an annual presence 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.

Many 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.



Blue Mesa Reservoir: October 31, 2018

2018
Division 4 Water Court Activities

Applications for Decrees	134
Consultations with Referee	130
Decrees Issued by Water Court	178
Dismissals	0
Complaints	2

	<u>Structures</u>	<u>Cases</u>
New Conditional Water Rights Filed	36	16
New Absolute Water Rights Filed	31	22
New Diligence on Conditional Rights Filed	209	57
New Change of Water Rights Filed	9	8
New Conditional to Absolute Apps Filed	128	51
New Augmentation Plans Filed	5	5
Cancellations of Conditional Rights	0	0
Underground Water Rights Adjudicated	56	20
Surface Water Rights Adjudicated	164	87
Water Storage Rights Adjudicated	123	40
Plans for Augmentation Adjudicated	8	8
Change of Water Rights / Use Adjudicated	19	11
In-stream Flow Rights Adjudicated	0	0