2022 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 2022. As was experienced the previous season, it was a very dry fall going on to the winter of 2021/2022. These precipitation deficits set up a similar situation as last year where the first snows of the winter, which occurred in late October and early November, fell on parched ground. Again, 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 predicable, but the impacts are anticipated by runoff modeling each season. Finally much needed precipitation fell in December 2021, actually bringing the snowpack levels to well above average for the basin going into January 2022. However, the February, March and April snow accumulation months were sub-par and the Gunnison Basin ended at over 90 percent of average snowpack conditions for the season. Precipitation for April was only 50 percent of average and May precipitation was even worse at 45 percent of normal. The timing of the melt off was mixed depending on the location and elevation. Turns out, that in the higher elevations, the melt off occurred at little earlier than normal and for the southern basins as well, such as the San Miguel and Uncompahgre Rivers. Similar to the previous season, 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 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 nearly 100 percent of the median, due to the extremely dry antecedent soil moisture conditions, the runoff was dismal at only 63 percent in the Upper Gunnison, 60 percent in the Uncompahgre, and only 67 percent of average in the North Fork Gunnison River. Precipitation conditions finally improved in late June 2022 when the normal monsoon season kicked in and precipitation in June and July was 200 and 155 percent of average. For the remainder of July through October the precipitation was approximately 100 percent of average. Such a good monsoon season and finishing the irrigation year with rejuvenated soil moisture conditions will surely help the runoff season of 2023.

Water Supply Recap for 2022 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 15, 2022 was 445,000 acre-feet. However, the actual measured April through July runoff, based on streamflow gage records, was only 430,000 acre-feet, or approximately 63 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 5000 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 2,400 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 50 to 80 percent of average April through July runoff in 2022, depending on the local basin area.

The Uncompahgre Valley Water Users Association (UVWUA) began diverting water into the Gunnison Tunnel point of diversion on March 21st and did not ramp up to their full diversion of 1,000 cfs until May 5th, due to a sinkhole repair that need to be made April 25th. What is commonly referred to as the "April hole", which is when diversion at the Gunnison Tunnel exceeds the three-day average flow into Blue Mesa, was avoided in 2022. During any year in which an "April hole" occurs, the UVWUA is otherwise put in a position to place a call on the Uncompahgre River forcing the administration of most of the irrigation water rights in Ouray County and also consume of their Taylor Park Reservoir first fill storage account in the beginning of the irrigation season until the snowmelt in the high country beings to occur and inflow into Blue Mesa exceeds the demand at the Gunnison Tunnel.

The Grand Mesa
Water supply conditions have been suffering on the Grand Mesa and at the Grand Mesa system of reservoirs since the last good snowpack/runoff season of 2019. Even though the snow totals for the accumulation season of 2021/2022 ended up above average at 110 percent on the Grand Mesa, the actual April through July runoff at Surface Creek was only about 84 percent of average. As in any normal year all of the streams go on call eventually. 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 on April 26, 2022. This is to be expected. However, on the Surface Creek side, the number 1 water right for the Alfalfa Ditch was satisfied the whole season and did not place a call. Nearly all of the reservoirs were entitled to store their decrees during the runoff in 2022.

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 2021, in 2022, the natural flow of the North Fork River was called out expectedly by the Paonia Ditch on July 9th and was followed by a more senior downstream call by the Short Ditch on September 1, 2021. The call continued until the September 14 when stream flows began to recover by the multiple monsoonal rain event and many ditches were turning off for harvesting.

The San Miguel River
In water District 60, the regular hydrologic pattern of seasonal monsoon rain events returned early summer of 2022, 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 June 19th lasting for a few days and again on June 27th for a couple of days. For nearly the rest of the summer, it seems to rain almost every day, even if lightly, in the high country, which propped up the base flow in the river. Similar to the previous season, a mainstem river call was amazingly 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 60 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.

Groundwater Administration

The Well Permitting Program in Division 4 continues to provide timely issuance of exempt well permits. There were 296 well permits issued within Division 4 during 2022, that's down from 373 in 2021. 271 of the 296 well permits were exempt well permits issued by Greg Powers, the well commissioner for Division 4. The remaining 25 non-exempt permits were issued by the Divisions 4, 5, 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 2022 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 were two well permit applications for exempt wells that were denied being issued by Greg Powers because they were located within a service area of a water supplier and the water supplier objects to the issuance of the well permits, which is a general policy of DWR. This general policy is being tested. The applicants contend that the cost to connect to the private water system is not reasonable and that the water provider does not have the capacity to serve the lots. These complaints should be resolved in 2023.

Hydrographic Activities

Division 4 has thirty-three Satellite Monitoring Stations (SMS) with forty-nine associated gages. No new gages were installed in 2022. 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. In addition, we cooperate with the US Bureau of Reclamation at four sites and publish two of the records. Josh Kasper Division 4's only full-time hydrographer and supports the entire Division. With the assistance of several Water Commissioners, Josh maintains the eleven published gages, forty-nine administrative gages and keeps the satellite monitoring equipment maintained. In 2022, a total of 128 measurements and 159 gage visits were made by Josh Kasper. A decision item was requested for an additional full-time hydrographer at the EPST II level and it looks favorable that the decision item will be supported by the Executive Directors Office and hopefully approved for fiscal year 2024.

Personnel

Jason Ullmann's vacancy at the Assistant Division Engineer's level was finally backfilled by a very competent engineer, Greg Brown. Greg is born and raised in the Montrose area and brought some amazing technical skills to the position. However, family matters out of state requiring Greg's immediate attention and Greg has to make the hard decision of leaving Division 4. Fortunately, we were able to attract another very competent professional engineer in Evan Jones, also a local from Montrose. Evan started October 24, 2022. Ever since Evan started the new job, it has rained and snowed in record amounts in Division 4. Evan is an excellent addition to Division 4. Three other positions were on the vacancy list by the end of 2022: The deputy water commissioner position in the Surface Creek area on top of the Grand Mesa; the deputy water commissioner position in the Leroux Creek area with the retirement of Paul Schmucker; and, the water district 62 position in the Lake Fork Gunnison area. These three positions are all scheduled to be filled in the spring of 2023.

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.

With COVID related restrictions being lifted in 2022, the Division 4 staff was more involved with our water users in public meetings and gatherings and at a personal level. However, we see such interaction as an increasingly important part of our responsibility as water stewards. Staff attended meetings 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.

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 with 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, Luke Reschke, and Sandy Ragsdale once again represented Division of Water Resources in fine fashion 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 event was very well attended in 2022.

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.