

**Upper Gunnison Drought Contingency Plan: Task Force**  
**Minutes**  
**January 24<sup>th</sup>, 2024**

**Task Force Attendees:**

Dave Fisher (Taylor Local Water Users Group)  
Dustin Brown (Scenic River Tours)  
Ashley Bembenek (Coal Creek Watershed Coalition)  
Bob Hurford (Division of Water Resources)  
Jesse Kruthaupt (Trout Unlimited)  
John McCLOW (UGRWCD)  
Julie Nania (High Country Conservation Advocates)  
David Garner (City of Gunnison)  
Lisa Brown (Wilson Water Group)  
Mike Rogers (Wastewater Treatment Plant)  
Susan Washko (Western Colorado University)  
Brinnen Carter (National Park Service)  
Shea Early (Town of Crested Butte)  
Shannon Hessler (Mount Crested Butte)  
Erik Knight Bureau of Reclamation)  
Steve Anders (USGS)  
Steve Moore (Coal Creek Watershed Coalition)

**Staff/Consultants:**

Carrie Padgett (Harris Water Engineering)  
Stacy Beaugh (Strategic by Nature)  
Sonja Chavez (UGRWCD)  
Cheryl Cwelich (UGRWCD)  
Alana Nichols (UGRWCD)

**I. Introductions, Agenda Review and Working Agreements:**

After the initial introductions, Cheryl Cwelich provided an overview of the meeting outcomes. The objectives were to gain insights into Gunnison Basin drought monitoring data and forecasting as a tool for early drought recognition. Additionally, the aim was to impart fundamental knowledge on water law and water administration in the Gunnison Basin. Short presentations were intended to facilitate Task Force engagement, encouraging constructive feedback and ideas for the development of the Upper Gunnison Drought Contingency Plan.

**II. Drought Monitoring Data Overview: Lisa Brown, Wilson Water Group**

Lisa Brown, representing the Wilson Water Group, delivered a presentation on Gunnison Basin Drought Monitoring Forecast Products. She underscored the critical question of how to recognize the early stages of the next drought, emphasizing the pivotal role of drought monitoring—a key element in the Drought Contingency Plan (DCP). Drought occurs when the river has less water than average, impacting community and environmental needs. Lisa detailed the comprehensive approach to measuring

streamflow, encompassing temperature, precipitation, snowpack, soil moisture, and reservoir storage, providing a holistic view of future streamflow.

The Upper Gunnison Basin uses a diverse array of tools for drought monitoring data. Snowpack measurement involves SNOTEL sites and ASO (Airborne Snow Observatory) flights utilizing lidar sites and aerial coverage. Due to cost considerations, ASO flights are limited to the East and Taylor watersheds, our basin's significant water resources. Additional drought monitoring data sources include USGS streamflow gauges, climate stations measuring temperature and precipitation, and reservoir storage reclamation, encompassing Taylor Park and Aspinnall Unit.

Drivers of drought in the Upper Gunnison Basin were discussed, including current conditions, carry-over conditions reflected in soil moisture levels, and reservoir storage conditions. The prediction of seasonal drought relies on the April 1 - July 31 runoff period, given the snowmelt-dominated nature of the Gunnison Basin. Substantial efforts and data collection during this period aim to predict flows and prepare operations for varying scenarios, be it a wet year, an average year, or a drought year. Furthermore, the Monsoon impacts from July to September, characterized by rainfall precipitation, were highlighted as a factor influencing streamflow fluctuations.

### **Forecasts:**

The Upper Gunnison Basin utilizes multiple information forecast providers, including the U.S. Drought Monitor, Natural Resources Conservation Service (NRCS), Airborne Snow Observatory (ASO), and Colorado Basin River Forecast Center (CBRFC). The U.S. Drought Monitor provides a snapshot of current conditions, released every Thursday. It is a blend of physical indicators (precipitation, streamflow, soil moisture) and drought impacts observed by experts, helping understand existing drought conditions in the basin. It is used to identify potential year types based on past unfolding years.

Another tool is the NRCS SNOTEL providers, offering a daily snapshot of current snow conditions. Interactive plots compare current Snow Water Equivalent (SWE) conditions to historical years, with SWE representing the amount of water in the snow. This is useful for identifying trends and drought risk. Additionally, ASO flights provide cutting-edge research and forecasts, led by David Gochis, who oversees the Gunnison WRF-Hydro model. This model provides detailed, gridded water supply forecasts for specific clients, focusing on unique situations. ASO inputs include sensors installed by David and measurements from the Airborne Snow Observatory.

In contrast, the Colorado Basin Forecast Center, a branch of the National Weather Service, provides a comprehensive view of the entire U.S. Accessed via website and monthly webinars, CBRFC models input temperature, precipitation, and streamflow automatically, with manual adjustments for snowpack and soil moisture. It is available at some USGS gage locations. The CBRFC's Water Supply Forecast for 2024 for the Gunnison River near Gunnison currently predicts an "average" year, but the range is wide. The forecast becomes more accurate in April when more skill and data are available. Forecasts are discussed during at least monthly meetings from March to September, with increased frequency as needed. Clients can contract with ASO for custom forecasts, extracting modeled values at any location, calibrated at gage locations.

Ashley Bembenek asked for details on the CBFC graph range.

Lisa explained that models run every day, creating lavender clouds. On the first of the month, a forecaster provides official guidance, generating data based on the lavender cloud. (see presentation on DCP webpage)

Lisa further expands the presentation by addressing additional considerations, including the interplay between hydrological conditions and water rights administration. She explores the timing of incoming calls, with early calls potentially indicating dry conditions. Anecdotal information from ranchers includes reports of dry springs and stock water tanks. Municipalities share concerns about stress on the distribution system, while recreational users contribute visual evidence of dry-up through pictures. Anglers provide insights into stressed fisheries.

While the Upper Gunnison Basin possesses a wealth of information, the key question revolves around whether we have the right information in the right locations. Lisa proceeds to divide forecasting information by each sub-basin.

### **Ohio:**

The Ohio Sub-basin, within the Upper Gunnison Basin, places primary importance on agriculture, supported by two actively monitored USGS gauges strategically placed in the region. Forecasting tools, such as the Colorado Basin River Forecast Center (CBRFC), provide forecasts at the mouth of the basin, while the Airborne Snow Observatory (ASO) focuses its predictions on the Ohio region at Baldwin. To further enhance water resource management, the approach involves quantifying drought conditions through a meticulous comparison of historical streamflow data with information gathered from agriculture producers.

### **East/Slate:**

The East/Slate sub-basin in the Upper Gunnison Basin is characterized by values centered around irrigation, municipal and industrial (M&I) use in the Crested Butte area, and widespread recreational activities. With five USGS gauges, the sub-basin benefits from forecasts provided by the Colorado Basin River Forecast Center (CBRFC) and the Airborne Snow Observatory (ASO) at its mouth, as well as ASO forecasts for the Slate River near Crested Butte and Coal Creek near Crested Butte. Drought conditions in this sub-basin have notable impacts on flows at snowmaking diversions, affecting the types and length of the recreation season. Additionally, low flows can have consequences for environmental values and municipal water supply, including augmentation needs. The quantification of drought involves a comprehensive analysis, comparing historical streamflow, M&I usage, recreational patterns, and agricultural producer information.

Shea Early emphasized the importance of acknowledging municipal shortcomings during drought periods and the critical need to address insufficient water supply. These considerations highlight the complexity and multifaceted nature of managing water resources in the East/Slate sub-basin.

### **Taylor:**

In the Taylor sub-basin of the Upper Gunnison Basin, streamflow is regulated by Taylor Park Reservoir, influencing a range of values including flat water recreation, whitewater boating, and fishing. Additionally, the area faces occasional challenges with flooding. With four USGS gauges strategically placed, forecasting is facilitated by both the Airborne Snow Observatory (ASO) and the Colorado Basin River Forecast Center (CBRFC). ASO provides forecasts for Taylor Park inflow, as well as for specific locations such as Taylor River above Taylor Reservoir, Texas Creek above Taylor Reservoir, and Willow Creek above Taylor Reservoir. TLUG (Taylor Park Reservoir Users Group) relies on ASO forecasts to determine recreational operations. Drought conditions are quantified through a comprehensive analysis that considers historical streamflow, reservoir storage, and recreational use. The study of boatable days, conducted by American Whitewater, further contributes valuable insights into the recreational dynamics of the Taylor sub-basin.

Brinnen Carter asked if the data from USGS station above Taylor Park be integrated to the outflow of Taylor Park dam?

Lisa Brown said yes, it is.

Sonja Chavez mentioned that Taylor has a subordination agreement that talks about the operations. This is one of the unique areas in the basin that has an instream flow right. The instream flow right dictates how this reservoir is operated. She mentioned if anyone wants more information on Taylor Park to reach out to UGRWCD.

**Mainstem:**

The Mainstem area in the Upper Gunnison Basin is characterized by values centered around irrigation, municipal use (specifically in Gunnison), and widespread recreational activities. Three USGS gauges are strategically placed in the region, and forecasts are employed to identify hydrologic year types. Flows in this area significantly impact the type of recreation and the length of the recreation season. The presence of Blue Mesa Reservoir introduces considerations such as flat water recreation, concerns related to harmful algae blooms, and emergency releases to Lake Powell. Low flows have potential impacts on environmental values and municipal water supply. The quantification of drought involves a comprehensive analysis that includes historical streamflow data, recreational usage patterns, municipal concerns, and agricultural producer information.

**Tomichi:**

The Tomichi sub-basin in the Upper Gunnison Basin is primarily characterized by its significance in agriculture, with a focus on crop cultivation. Drought conditions in this area directly impact crop yield, making it a crucial factor for agricultural considerations. The presence of five USGS gauges strategically placed within the region facilitates monitoring, with forecasting conducted by the Colorado Basin River Forecast Center (CBRFC) at the mouth and the Airborne Snow Observatory (ASO) at Sargents. The quantification of drought involves a detailed analysis, comparing streamflow data with information gathered from agriculture producers, providing valuable insights into the dynamic relationship between hydrological conditions and agricultural activities in the area.

Ashley asked about the number of residents along the valley corridor who use wells, specifically not for municipal purposes. She questioned whether the DCP plan would address this aspect.

In response, Sonja mentioned that the Upper Gunnison River Water Conservancy District (UGRWCD) has not received calls regarding drinking water issues during drought. She explained that when there is a call on the Tomichi, adjustments are made to diversion points to prioritize water for senior water rights, but there could still be concerns. Sonja noted that most of the water use in the region involves groundwater for municipal purposes rather than surface water supplies, resulting in relatively few calls. She mentioned an instance where a well was influenced by return flows.

**Cebolla:**

The Cebolla sub-basin in the Upper Gunnison Basin holds values centered around irrigation and recreation, including on-stream activities and fishing ponds. While there are no active streamflow gauges within this sub-basin, the gages on Lake Fork can serve as effective predictors of hydrologic conditions. Utilizing these forecasts, the area can identify hydrologic year types and make informed decisions. The flows in Cebolla significantly impact the length of the fishing season and the ability to fill off-channel ponds, crucial considerations for both recreational and agricultural aspects. Low flows can

have consequences on environmental values within the sub-basin, highlighting the interconnected nature of hydrological conditions and the various uses of water in the region.

### **Lake Fork:**

The Lake Fork sub-basin in the Upper Gunnison Basin is characterized by the dual values of M&I agriculture and recreation, encompassing on-stream activities and fishing ponds. The region is monitored by three USGS gauges. The Colorado Basin River Forecast Center (CBRFC) provides forecasts for Lake Fork at Gateway, offering insights that aid in identifying hydrologic year types. The flows within this sub-basin play a pivotal role in shaping the length of the fishing season and determining the capacity to fill off-channel ponds, crucial considerations for both recreational and agricultural purposes. Furthermore, low flows have the potential to impact environmental values and municipal water supply, including augmentation requirements. To quantify drought, an extensive analysis is conducted, comparing streamflow data with information related to recreational activities, providing valuable insights into the intricate relationship between hydrological conditions and the diverse uses of water in the Lake Fork sub-basin.

In outlining the next steps for drought contingency planning, Lisa emphasized a comprehensive approach focused on leveraging existing products. The strategy involves making these resources relevant to local communities, potentially by organizing initiatives based on sub-basin considerations. Furthermore, the development of distinct stages of drought is proposed to provide a structured framework for assessing and responding to varying drought conditions. Lisa highlighted the importance of tying historical drought years, such as 2002, 2018, and 2021, to established drought metrics, offering valuable context for understanding potential impacts and challenges associated with different levels of drought intensity. A key element of the plan is effective communication with the public, disseminating information to raise awareness and empower communities to take informed actions in response to varying drought levels. These strategic steps underscore a proactive and inclusive approach to drought management, ensuring preparedness and resilience across the diverse communities within the Upper Gunnison Basin.

Stacy Beagh invited attendees to share any questions or comments on drought monitoring by reaching out to either Carrie or herself via email. She encouraged further discussion on this topic in the upcoming meeting, allowing everyone time to reflect on the presentation and contribute thoughtful insights.

### **III. Water Law 101: John McClow, General Counsel, UGRWCD**

John McClow delivered a presentation on Colorado Water Law. Colorado water law dates back 160 years to the arrival of the first colonial settlers on the East Coast. They incorporated the British common water law, known as the riparian doctrine, which grants people living on riverbanks the right to use water if it does not significantly diminish water quality.

Upon reaching Colorado, settlers realized that merely having water in the stream would not suffice. They needed to move water from the stream to the land for irrigation, crop watering, and municipal needs. The earliest territorial legislators authorized diverting water from the river to non-adjacent land. In 1876, once Colorado became a state, these principles became the foundation of the state's water law as outlined in the Colorado Constitution.

The constitution declares the water of every natural stream not previously appropriated to be the property of the public, dedicated to the use of the state's people, subject to appropriation. This leads to

the Prior Appropriation Doctrine, where senior water rights (prior rights) have precedence over junior rights in times of scarcity.

Appropriation requires intent, diversion from natural streams, and application of water to beneficial use without waste. Exceptions include impoundment, instream flows, hydropower, and recreational in-channel diversions. Adjudication results in a decree confirming crucial details of a water right, protecting against injury to other water rights.

The adjudication process involves filing applications in one of seven water courts, with Gunnison falling under Division 4. There is then a publication in the water court resume and online, notifying the public of attempts to obtain water. At this point, parties can file statements of opposition or propose conditions to avoid injury to other water rights. The judicial officer, known as the water referee, performs an investigation, turning to the division engineer for ground truthing. The referee issues a ruling, and if uncontested, the water judge signs the decree, protecting the water right. This is an absolute water right.

An absolute water right involves taking water from the stream and fully using it. A conditional water right allows the applicant not to take water from the stream. The purpose of a conditional water right is to enable resource development for major projects that take years to implement, providing a way to protect water rights. To do this, applicants must give notice, show a substantial probability of can and will, and demonstrate full water use every six years.

Storage rights, allowing the appropriation and storage of water for later use, come with the "One Fill Rule." A reservoir may be filled once per water year, and refill rights must be obtained by decree. Abandonment, often misunderstood as "use it or lose it," requires non-use for a prolonged period with intent to abandon, examined every 10 years.

Any water right can be changed concerning the type or place of use, requiring an application to water court with no injury to other water rights. The amount that can be changed is the amount of consumptive use. The remainder must be returned to the stream to avoid causing injury to other water rights. The Gunnison basin is over-appropriated, meaning there are more water right decrees than water in the system. To protect a junior water right that is essential, a plan for augmentation is necessary.

#### **IV. Water Administration in the Gunnison Basin: Bob Hurford, Division of Water Resources**

Bob Hurford presented an overview of the Colorado Division of Water Resources and Water Administration in the Gunnison Basin. The Division of Water Resources is structured into seven hydrologic basin areas, each responsible for various tasks, including Water Administration, Dam Safety, Groundwater Permitting, Interstate Compacts, Hydrographic Program, Public Information Services, and additional program activities like collaboration with Water Courts.

Water Administration involves water commissioners who ensure proper water diversion on the ground. The decree grants the right to use water, emphasizing that no one ever owns it. During droughts, if wells are insufficient, permits can be obtained to drill deeper, reducing reliance on return flows. Notably, installing a water well without a permit is prohibited.

The Division of Water Resources has diverse job categories, including administrative, accounting, program support, dam safety, groundwater permitting, enforcement, measurement, hydrographer, IT professional, water administration, water supply, management, and water commissioner roles.

Ditches play a crucial role in Colorado, permitting landscapes, economies, and histories, with agriculture being the predominant user (86%), followed by municipal/domestic (7%), recreation/fisheries (3%), industrial/commercial (2%), augmentation (1%), and recharge (1%).

Established in 1879, Water Commissioners distribute water rights based on the principle of "First In Time...First In Right." Key statutes governing the Division include Title 37, Article 92 (Water Rights Determination and Administration), Title 37, Article 90 (Well Permitting), Title 37, Article 80 (State Engineer Authority), Title 37, Article 84 (Responsibility of Users), and Title 37, Article 87 (Review of Reservoir Plans).

Water Commissioner responsibilities encompass day-to-day administration, setting calls on streams, ensuring diversions in priority, measuring diversions, delivering augmentation water, operating exchanges, and reviewing accounting and maintenance of diversion records.

Commonly used statutory provisions for water administration include C.R.S. 37-92-501 (General Jurisdiction), C.R.S. 37-92-502 (Daily Administration), C.R.S. 37-84-117 (Release of Water), and C.R.S. 37-80-120 (Exchanges).

Bob Hurford emphasized the importance of placing calls, where water users complete a form to make an official call. The value of a water right is determined by how much can be measured and the period of the measurement record, increasing when efficient usage is demonstrated.

An augmentation plan ensures junior water rights are met, and water commissioners hold significant authority when it comes to crossing properties. Tools provided for learning more about Colorado water include the Division of Water Resources website, Water Education Colorado website, CSU Colorado Water Center website, and The Water Report website, which issues monthly reports.

Regarding instream flow water rights, there are mechanisms for transfer or change, and Bob Hurford highlighted the process for understanding Colorado water and encouraged exploration of the mentioned websites for additional information.

Brinnen expressed concerns about water storage and usage.

Bob highlighted the role of aquifer storage in water rights, particularly for recharge credits. In Colorado, aquifer storage serves as a replacement water source. Notably, to obtain a well, a property must be 35 acres or larger in the state.

Sonja brought up Rosemary Carroll's studies on deep groundwater storage, revealing that aquifers may not replenish adequately even after a significant snowpack. She questioned whether the Division of Water Resources would advise the public to limit lawn watering during severe droughts, prioritizing indoor use.

Bob explained that during droughts, curtailing water rights would occur, with priority given to stream and water right holders. Small domestic wells would be affected last, as curtailing surface water rights can provide more water to streams than well water rights. Sonja emphasized the need for messaging to well water users, urging them to limit outdoor irrigation.

Ashley inquired about tying wells into centralized reclaimed water systems. Bob clarified that a standard septic system is necessary, and Ashley advocated for consolidated wastewater treatment systems.

Bob mentioned that the Division of Water Resources (DWR) would handle it. He noted that a proliferation of septic systems could lead to nitrate issues, fertilizing rivers, and explained that applications are evaluated to minimize impact on vested water right holders.

Stacy continued the meeting by reminding all Task Force members to schedule interviews with her and complete the DCP survey. Stacy also reiterated that the next Task Force meeting is scheduled for February 28th at 9:00 a.m.

The meeting was adjourned at 11:00 a.m. by Stacy Beagh.