Upper Gunnison Drought Contingency Plan: Stakeholder Meeting

Minutes

March 27th, 2024

Attendees:

Laura Puckett Daniels (Gunnison County)
Dan Zadra (CPW)
Jon Hare (High Country Conservation Advocates)
Peter Caloger (Gunnison Sage Grouse)
Ashley Bembenek (Coal Creek Watershed Coalition)
Bryan Moore (USGS)
Greg Levine (Hinsdale County)
Scott Morrill (Gunnison County Emergency Management)
Lisa Bickford (Gunnison County Emergency Management)
Sherry Ford (Western Colorado University)
Liz Smith (Gunnison County BOCC)
Nathan Seward (CPW)
Shannon Muenchow (USFS)
Matt Vasquez (USFS)
Brinnen Carter (National Park Service)
Patrick Plumley (Trout Unlimited)
Zach Dutra (Lake Fork Valley Conservancy)
Krystal Brown (Gunnison Highschool Teacher)
Shea Early (Town of Crested Butte)
Mike Davison (Private Water Attorney/ User)
Mike Rogers
Jonathan Houck (Gunnison County Commissioner)
Casey Smith (Bureau of Reclamation)
John Hess (Coal Creek Watershed Coalition)
Jesse Kruthaupt (Trout Unlimited)

Attendees via Zoom:
John McClow (UGRWCD)
Janna Hansen (Town of Crested Butte)
Katie Lawn (Youth Programs Coordinator at RMBL)
Dan Brauch (CO Parks and Wildlife)
Shannon Hessler (Mount Crested Butte)
Christine Albano (Desert Research Institute)
Jesse Bryan (Trout Unlimited)
Lisa Brown (Wilson Water Group)

Petar Simic (Happy Habitats Gunnison)
Erik Knight (BOR)
Ken O. (Water User)
Jon Kaminsky (BLM)

Staff/Consultants:
Carrie Padgett (Harris Water Engineering)
Stacy Beaugh (Strategic By Nature)
Sonja Chavez (UGRWCD)
Alana Nichols (UGRWCD)

I. Welcome and Introductions:

Stacy Beaugh and Carrie Padgett introduced themselves, expressing gratitude to all participants for their involvement and emphasizing the importance of public input in comprehending the challenges across various water sectors and formulating strategies to mitigate and respond to drought. Stacy proceeded to outline the outcomes of the stakeholder meeting, which included learning about the Upper Gunnison River Drought Contingency Plan process, its significance, and methods for engagement. Participants were encouraged to understand and provide input on the Gunnison Basin's susceptibility to drought, hear diverse perspectives on drought experiences and their impacts on water users/interests, and learn how they can make decisions regarding drought management. The goal was to engage in a constructive and motivating discussion aimed at optimizing the Drought Contingency Planning effort for the UGRWCD and water users. Following this introduction, Stacy reviewed the agenda for the day.

II. Drought Contingency Plan (DCP) Overview & Purpose:

Carrie Padgett provided an overview of the purpose and function of a Drought Contingency Plan (DCP). She articulated that the DCP aims to address three key questions:

- How will we recognize the next drought in the early stages
- How will drought affect us
- How can we protect ourselves for the next drought?

Carrie emphasized that most DCPs are structured to address these questions. The planning process is designed to guide planners in addressing these questions while promoting an inclusive and proactive approach to building resilience against drought in the long term. The overarching objective is to shift away from reactive responses and short-term memory toward proactive measures.

Carrie further discussed the core elements that the plan addresses, stressing the importance of maintaining focus on the three key questions: triggers, response actions (in response to impacts), and mitigation actions (for protection and resilience). This proactive approach extends to non-federal partners and is funded through the Bureau of Reclamation's Drought Response Program, with the planning process adhering to the framework provided by the BOR.

Additionally, Carrie introduced the concept of drought resiliency, defined as a community's ability to cope with and respond to drought. She highlighted that BOR offers grant assistance for drought resiliency projects, termed "Mitigation Actions" within the DCP, and noted that other actions may be eligible for BOR WaterSMART funding. It was stressed that consideration of climate change impacts on water supplies is crucial for long-term resiliency. This approach enables drought planning and resiliency projects to qualify for future funding opportunities.

Carrie emphasized the collaborative nature of the planning process, which involves stakeholders from various sectors including agriculture, municipal, recreational, and environmental interests. This inclusive approach aims to garner broad support for Mitigation and Response Actions within the plan, fostering a unified effort to build long-term resilience to drought.

Carrie proceeded with the presentation, detailing the six required elements of the Drought Contingency Plan:

1. **Drought Monitoring**: Establish a process for monitoring drought, and a framework for predicting the probability of future droughts or confirming an existing drought.

2. **Vulnerability Assessment**: Identify potential drought related risks to critical resources within the planning and environmental fields and will evaluate the risks to critical resources within the planning area and the factors contributing to those risks.

3. **Mitigation Actions:** Identify, evaluate, and prioritize drought actions and activities that will build long-term resilience to drought, mitigate the risks posed by drought, decrease sector vulnerabilities, and reduce the need for response actions.

4. **Response Actions:** Identify, evaluate, prioritize response actions and activities in coordination with Task Force members, that can be quickly triggered during specific stages of drought and implemented to address and decrease the severity of impacts of an emerging or ongoing drought.

5. **Operational and Administrative Framework:** Develop a framework to identify who is responsible for undertaking the actions necessary to implement each element of the DCP, including communicating with the public about DCP developments and updates.

6. **Plan Development and Plan Update Process:** The approach taken to develop the DCP will be documented including how stakeholders were engaged and how input was considered, along with schedule for monitoring, evaluating, and updating DCP.

She then outlined the ten-step DCP process:

1. Appoint a Drought Task Force
2. State the Purpose and Objectives of the Drought Contingency Plan
3. Seek stakeholder participation and resolve conflict
4. Inventory resources and identify groups at risk
5. Draft the Drought Contingency Plan
6. Identify Research Needs and Fill Institutional Gaps
7. Integrate Science and Policy
8. Publicize the Drought Contingency Plan and Build Public Awareness
9. Develop Education Programs
10. Evaluate and Revise Drought Contingency Plan

Following this, Stacy Beaugh discussed the Task Force's role in the process, emphasizing the importance of input from various sectors. The Task Force, comprising a diverse group of interests, meets monthly and supports the District in overseeing and designing the DCP process. Their responsibilities include ensuring the needs of the planning area are considered, acting as liaisons to their represented communities, supporting outreach efforts, and encouraging public engagement. A list of the DCP Task Force members was provided, accessible on the Upper Gunnison River Water Conservancy District (UGRWCD) website under the District & Programs section and the Drought Contingency Plan tab.

III. Basin Characteristics in the Context of Water Resource Challenges:

Lisa Brown, representing the Wilson Water Group, delivered a presentation on Upper Gunnison Basin Characteristics. She mentioned that the Gunnison River hydrology is extremely variable. She emphasized the DCP's importance to the Upper Gunnison Basin due to the presence of seven extremely variable watersheds in the area. The annual streamflow varies significantly depending on the snowpack and summer monsoon rains. The graph Lisa presented showed that the wet year 2019 annual streamflow was three times higher than dry year 2018 annual streamflow. The next graph showed a 10-year running average streamflow categorized in dry, average, and wet periods. The 10-year running average streamflow hit an all-time low in 2007 due to five consecutive years of

dry hydrology. Since 2000, the Gunnison River has experienced more dry years than any other 23-year period since measurements began in 1908. The six tributaries included in the presentation are Ohio Creek, Taylor River, East River, Tomichi Creek, Lake Fork and Cebolla. The third graph displayed data from the 2016 representative average hydrologic year, representing natural flows for four tributaries which were Ohio Creek, Taylor River, East River and Tomichi Creek. The percentages of natural flows were as follows: 10% for Ohio Creek, 28% for Taylor River, 31% for East River, and 31% for Tomichi Creek. Lisa also provided clarification regarding the term "Natural Flow," explaining that it signifies the hydrologic yield, with any depletion caused by human activities removed from the gage flow measurements.

` Lisa continued the presentation, discussing the characteristics and hydrologic challenges of each tributary as presented in the graphs:

For the East River, it was noted that depletions were relatively small compared to natural flow, ranging from 5% in wet years to 17% in dryer years. Most "consumptive" use was for irrigation, along with some municipal use in the Crested Butte area. East River and its tributaries are widely used for recreation. Furthermore, peak runoff generally occurred in mid-June, but in dryer years, it could peak in early May. Larger tributaries to the East River included Slate River and Coal Creek. The hydrologic challenges for the East River were identified as quicker runoff as temperatures increased, which would reduce the period of optimum recreational flows. Additionally, inconsistent winter snowpack might impact skiing opportunities and associated economic benefits. There could also be increased competition between agricultural water users/landowners and recreational enthusiasts.

Regarding the Taylor River, it was mentioned that annual natural flows were significantly altered by Taylor Park Reservoir operations, as water was stored during runoff and then released during low-flow periods for recreational flow purposes and downstream users. Stream flows were lower than natural flows in May–July due to water storage and higher than natural flows in Oct–April as releases were made. Storage was carried over in wet years and available in subsequent dry years. Annual flows were greater than natural flows in dry years, especially following an average or wet year when Taylor Park Reservoir carried over storage. The presentation highlighted that 2018 was a very dry hydrologic year following the wet 2017 hydrologic year, with water stored in 2017 being released in 2018. The hydrologic challenges for the Taylor River included uncertainty about whether the reservoir could meet its intended purposes during more than five consecutive dry years, despite robust and flexible reservoir release and bypass agreements that supported both stream and reservoir recreation, even during the recent 22-year drought period.

As for Ohio Creek, it was characterized as a "working" river, with a significant portion of runoff diverted for irrigation. Depletion during dry years accounted for more than 50% of natural flow. It was noted that there is essentially no storage in the watershed, and most ditches experience shortages in the late irrigation season, regardless of the hydrologic year type. The hydrologic challenges for Ohio Creek included the impact of quicker runoff due to increasing temperatures, further limiting water available during the

irrigation season, and resulting in larger crop shortages and economic impacts to the agricultural industry. There was also the potential for increased competition between agricultural water users/landowners and anglers.

As for Tomichi Creek, its characteristics were presented, indicating that diversions were greater than natural flow due to the re-diversion of irrigation return flows downstream. The gravelly soils in the area required significant diversions, especially early in the irrigation season, to fill the soil zone and allow for efficient irrigation. Tomichi Creek had minimal storage for irrigation, but the re-timing of natural flows allowed more water to be available for diversions, providing similar benefits to storage. The advantages of return flows, observed during the runoff through the late irrigation season, were more pronounced during dry years but were important even in wet years. This efficient irrigation method was also practiced on Ohio Creek due to similar gravelly soil profiles. The hydrologic challenges on Tomichi Creek were identified as quicker and reduced runoff due to increasing temperatures, which further limited water available during the irrigation season and resulted in larger crop shortages and economic impacts on the agricultural industry. It was noted that changes in historical irrigation practices could reduce return flows and impact the water available to downstream ditches.

The Lake Fork and Cebolla Creek basins share similar characteristics, warranting their combined presentation. Approximately 85% of the land within these basins is publicly owned, with the remaining portion consisting mostly of ranches, horse properties, and some mining interests, although current mining activity is minimal. Private land is primarily concentrated along the Lake Fork River and Cebolla Creek, along with their tributaries.

Lake City is the only town within these basins providing municipal water services, with most residents relying on domestic wells. The Upper Gunnison River Water Conservancy District (UGRWCD) owns water augmentation in Lake San Cristobol, serving as a crucial water source for current users, future development, and drought mitigation. Regarding streamflow dynamics, there are currently no active gauges monitoring Cebolla Creek's flow within the basin. However, historical data from gauges spanning 1938 to 1955 suggest that runoff in Cebolla Creek typically occurs earlier than in other Upper Gunnison River tributaries, peaking in May, except during unusually wet years. Conversely, in the Lake Fork basin, there are two active gauges located below Lake San Cristobal and at Gateway. Analysis from the Gateway gauge indicates that peak runoff usually occurs in June. In terms of natural flow depletions, Cebolla Creek experiences a depletion of 7%, while Lake Fork exhibits a lower depletion rate of 2%. Agriculture remains the primary consumptive use of water in these basins, with depletion rates notably lower compared to the more agriculturally intensive Tomichi and Ohio Creek tributaries. A significant portion of stream miles in these basins benefit from Colorado Water Conservation Board (CWCB) instream flow rights protection, ensuring the preservation of water levels necessary to sustain aquatic ecosystems. Lastly, Lake Fork and Cebolla Creek are popular destinations for floating and fishing recreation, underlining their ecological and recreational importance within the region.

Lisa's presentation included data trends illustrating Gunnison's average irrigation season temperatures from 1894 to 2022 in comparison to average non-irrigation season temperatures over the same period. She emphasized the year-to-year variability in temperature and the direct correlation between higher irrigation season temperatures and increased crop irrigation demand. Notably, Lisa highlighted that the average irrigation season temperature from 2000 to 2022 was 0.6 degrees Fahrenheit warmer than the average from 1894 to 1999, while the average non-irrigation season temperature from 2000 to 2022 was 0.2 degrees Fahrenheit warmer than the historical average. Although both irrigation season and winter temperatures displayed a slight warming trend, they have not experienced as significant an increase as other regions in the western United States. Lisa also presented two comparative graphs, illustrating Gunnison's total irrigation season precipitation from 1948 to 2020 (May-September) and total non-irrigation season precipitation from 1948 to 2020 (October-April). She emphasized that irrigation season precipitation is reliant on Monsoonal flow patterns, which exhibit considerable year-to-year variability, surpassing that of temperature. In terms of precipitation trends, Lisa highlighted that while 2022 experienced higher precipitation levels in certain months, the overall precipitation for the full irrigation season remained below the historical average. Both irrigation season and winter precipitation have been on a declining trajectory since the early 2000s. Of significant note, Lisa underscored that the diminishing precipitation is having a more pronounced impact on reduced runoff in the Upper Gunnison basin compared to the effects of increased temperature. These data-driven insights were presented to provide a clear understanding of the driving factors behind the imperative need for the District to formulate a Drought Contingency Plan.

IV. Stakeholder Input (Break-out Groups):

Stakeholders were broken into breakout groups to ask their opinion on three questions (discussion notes included beneath each question).

1) **When have you experienced drought (What does that look like to you? How would you describe the impacts?)**
    a. 2001 – driest
    b. 2002
    c. 2012
    d. 2018 – lack of irrigation water
    e. 2021 – Blue Mesa drained to fill Lake Powell
    f. No real monsoon season
    g. Year-round recreation impacts
    h. Inability to water later in season
    i. Low lake levels
    j. Use of potable water in low years
    k. Wildfire planning – risk
    l. Water availability
    m. Wildlife habitat encounters

n. Change in weather patterns
o. Higher winds
p. Dust on snow events
q. Impacts vegetation growth
r. Increased avalanche danger
s. Fire restrictions
t. Habitat changes
u. Impacts on wells
v. Public land pressures – the land can't take it in drought years
w. Mental health
x. Water treatment challenges
y. Use tree ring data to help understand
z. Looking at water in capital improvements
aa. Stress on forest (beetle kill, disease)
bb. Limited backcountry water – impacts on wildlife
cc. Stock water/springs dry
dd. Recreation (boating/fishing closures) – and people don't always respect those
ee. Algal blooms

2) How does drought affect you, your business/operations?

a. Ag – reduced yield, reduced income, economic impacts
b. Increase in conflicts with user groups
c. Municipalities emergency planning, increased risk, awareness and planning
d. Domestic wells, limit growth
e. Limited storage
f. Adaptive management
g. Flood risk increased
h. Significant water policy changes
i. Curtailment of jr. water rights – soils limitations, groundwater recharge
j. River flows, reduced affects, temperature, fish habitat, mortality
k. Pollution, water quality
l. Fish passage efficacy
m. Economic effects from direct dependence on water
n. Quality habitat for wildlife – terrestrial and aquatic
o. Less productivity
p. Less micro climates, drought - using more north facing slopes and watersheds
q. Education
r. Boat ramp access reduction
s. CSU extension focus on drought mitigation
t. Public education at business/operations
u. What recreation is possible – in river and reservoir
v. Toxic algal blooms – sound alerts
w. Blue Mesa – tourism impacts
x. Political tension
y. Fish kills – cost to tourism and environment

z. Ski season – shortened, safety concerns
aa. Snow removal – lacking, impacts jobs
bb. Run-off impacts to roads and infrastructure (ditches)
cc. Using potable water
dd. Hay production impacts (labor, management, irrigation) – in ability to get water where its needed
ee. Increase temperature impacts fishery
ff. Changes in wildlife behavior, patterns (e.g., less water holes, forage impacts)
gg. Recreational camping impacts – no fires
hh. Economic impacts with skiing, recreation, students, labor, etc.
ii. Live within hydrology on an annual basis
jj. Resources are reallocated
kk. Running ranch on a thinner margin, few cattle
ll. Visitor services – staying ahead of information and education
mm. More motivation to take on ecological restoration projects (e.g., wet meadows, etc.)

3) Why do you think our community is particularly vulnerable to drought?

a. Wildfire risk – if fire, sediment loads can impact infrastructure, water qual and bad air quality, burden to move cattle out of harms way
b. Vulnerability to ag community – possibilities:
    i. Diversify grass ecosystem
    ii. Invest in drought tolerant species
    iii. Diversify seed mixes
c. Impacts of aquifer storage
d. Impacts to recreation economy
e. Warming water temps
f. Low Tech Process Based Restoration Projects are getting damaged, need programs to augment that work
g. Economic benefit in water – can we measure that?
h. Can't control storage – little basin storage
i. Compounding impacts
j. Sage grouse – resiliency is a struggle
k. Effect of monetizing water – money shouldn't drive water values
l. Forest restrictions make it hard to use land
m. Fire is a risk – wet meadows projects are helping
n. Failing to acknowledge our own economic reliance, benefits on water
o. Extensive public lands – reliance on public lands for grazing
p. Food security
q. Domestic wells are regulated, not protected
r. Lack of buffering capacity – from year to year
s. Can't control tourism, the number of people in the area
t. Live in the high-desert – controlling people's expectations/notions about water
u. Part-time residents don't understand

v. Being a headwater community
w. Snowmaking – does not create more water
x. Every aspect of our economy relates back to water
y. Not having tools to manage vulnerability (e.g., town codes)
z. Small portion of water use is in the hands of community – savings on municipal don't amount to much
aa. We collaborate more

4) **Solution ideas (some groups discussed, but not all)?**
   a. How can we do more with less?
   b. Agricultural transfer methods (ATMs)
   c. Discharge permits
   d. Can Ag reduce?
   e. Share credits?
   f. Working together
   g. Balance between community impacts
   h. Need to education community – get buy-in
   i. Need more source water protection planning
   j. Plan for conservation on municipal vs ag/irrigation uses
   k. Demonstrate value to community and motivate change versus mandating change.
   l. Climate Action Plans

V. Next Steps and Engaging Opportunities:

a. Meeting Schedule
   i. Next stakeholder meeting is September 23, 2024
   ii. 9 to 11 a.m.
b. Next Agenda
   i. Objectives
      1. Brainstorm potential mitigation and response actions.
c. Stay Engaged
   i. Visit the District's website to learn more.
   ii. https://ugrwcd.org/drought-contingency-planning/

The meeting was adjourned by Stacy Beaugh at 11:02 a.m.