Upper Gunnison Drought Contingency Plan: Task Force

Minutes

February 28th, 2024

Task Force Attendees:
Whit Blair (USFWS)
David Stoner (Ute Mountain Ute)
Hannah Cranor (Gunnison Stockgrowers and CSU Extension)
Shea Early (Town of Crested Butte)
David Gardner (City of Gunnison)
Susan Washko (Western Colorado University)
Jesse Kruthaupt (Trout Unilited)
Steve Moore (Coal Creek Watershed Coalition)
Steve Anders (USGS)
Shannon Hessler (Town of Mount Crested Butte)
Dave Fisher
Brinnen Carter (NPS)
Lee Traynham (BOR)
Dayle Funka (USFS)
Jon Kaminsky (BLM)
Mike Rogers (City of Gunnison)
Brandon Diamond (CPW)

Staff/Consultants:
Carrie Padgett (Harris Water Engineering)
Stacy Beaugh (Strategic by Nature)
Sonja Chavez (UGRWCD)
Cheryl Cwelich (UGRWCD)
Alana Nichols (UGRWCD)
Lisa Brown (Wilson Water Group)

I. Welcome and Goals for the Day

Cheryl Cwelich initiated the meeting by informing the Task Force that additional information on Drought Contingency Plan meetings can be found on the Upper Gunnison River Water Conservancy District (UGRWCD) website. She emphasized the importance

of signing up for interviews with Stacy Beaugh, noting that there are still a few that need to be completed. Cheryl outlined the intended outcomes for the meeting, which include gaining foundational knowledge on agricultural water use, environmental, and recreational needs in the Gunnison Basin. The group also aims to begin developing drought indicators and communication tools by determining thresholds based on data and time of year. Lastly, the group will prepare for the first stakeholder meeting to be held in March.

II. Introductions and Project Overview

Stacy Beaugh informed the group that a Drought Contingency Plan Stakeholder Meeting flyer will be distributed soon and asked Task Force members to share it widely with community members who may be interested or have useful perspectives. Although the March meeting is designed as a stakeholder session rather than a Task Force meeting, Stacy encouraged all Task Force members to attend and continue contributing to the effort.

She provided a status update on stakeholder interviews and the online survey:

- So far, 15 individuals have completed the survey.
- A revised version of the stakeholder survey is being developed to reach a broader set of respondents across different sectors and user types.

Stacy also reviewed the status of the DCP Scope of Work, which she is working on in partnership with Lee Traynham. While formal review by the Bureau of Reclamation's program office is still pending, initial feedback has been positive with only minor adjustments expected.

III. Educational Presentations

Agricultural Water Use and Considerations in the Gunnison Basin

Hannah Cranor Kersting, a third-generation cattle rancher and vice president of the Gunnison County Stockgrowers Association, delivered an in-depth overview of agricultural water use in the Gunnison Basin. She emphasized the central role agriculture plays in the region's economy and ecosystem, noting:

- Livestock in the basin have a total value of $18 million, with 23,819 head of cattle.
- Each cow contributes approximately $300–$400 to the local economy.
- Agriculture in the Colorado River District region supports 1.7 million jobs, including sectors such as farming, forestry, and fishing.

In Gunnison County, most irrigation is done via traditional flood irrigation methods. Hannah explained the value of this approach:

- These systems are operated under prior appropriation doctrine and often have limited physical storage; the true storage lies in the soil and water table.
- Flood irrigation helps to recharge groundwater—"the sponge is our storage"—and creates return flows that are reused downstream up to three times.
- Return flows are especially vital during dry years, maintaining late-season base flows in local streams.

She also addressed challenges, including:

- Infrastructure limitations: Even senior water rights holders may face shortages if the ditch system doesn't carry water efficiently.
- Climate variability: Longer growing seasons don't necessarily translate into higher yields due to soil and crop limitations.
- Interconnectivity: Upstream decisions and efficiency upgrades can have ripple effects, reduce return flows and impacting downstream users.

Hannah cautioned that some modern irrigation practices can unintentionally reduce beneficial return flows. She emphasized the need to balance efficiency with hydrologic function, especially in a basin where ecological, agricultural, and community health are closely linked. She concluded by sharing that CSU Extension is preparing an article highlighting innovative water management approaches in the Upper Gunnison Basin.

IV. Environmental Water Needs and Considerations in the Gunnison Basin

Jesse Kruthaupt, representing Trout Unlimited, presented on environmental water needs and their interaction with agricultural practices. While not a formal environmental scientist, Jesse has experience in both agriculture and ecosystem restoration. He shared that he invented the Auto Tarp, an innovative device that replaces manually adjusted irrigation tarps. The Auto Tarp opens and closes automatically to control water delivery in ditches more efficiently, helping ranchers save labor and water while improving consistency of flows.

Jesse described how traditional flood irrigation can mimic historic streamflow patterns, such as seasonal overbank flooding. These patterns are beneficial for fish and aquatic habitat, especially during times of thermal stress in late June and early July. He described a 2018 fallowing experiment in which streamflow increased from 6 to 18 cfs due to the reduction in irrigation, then stabilized at around 12 cfs. Even without a significant change in stream temperature, the increased flows were sufficient to reduce fish mortality.

Jesse emphasized that:

- Shutoffs around mid-summer can coincide with beneficial return flows that bolster stream systems.
- The natural ebb and flow of water in the basin—including dry-up points—are expected and not necessarily problematic.
- Restoration efforts, such as repairing legacy roads, can replicate historical hydrologic function and benefit both agriculture and ecology.

Sonja Chavez shared that UGRWCD is working with the USGS on a Return Flow study to quantify return flows and demonstrate the benefits of flood irrigation.

V. Interpreting Drought Forecasting & Indicator Data

Carrie Padgett led a presentation focused on how to recognize early signs of drought using existing data tools and indicator frameworks. She reviewed existing work from Lisa Brown, highlighting multiple tools and forecasting resources. Her key focus was

establishing a **Drought Monitoring Framework** built on seasonally appropriate benchmarks:

- **November:** Check soil moisture conditions at start of water year
- **January–February:** Monitor SNOTEL data for SWE triggers
- **March–April:** Assess snowpack trends, streamflow forecasts
- **May–June:** Observe runoff and dust-on-snow patterns
- **Summer:** Daily monitoring of temperature, precipitation, and streamflow

Carrie acknowledged persistent gaps in reliable soil moisture data, despite its critical role in understanding runoff and drought vulnerability.

- Dave Goches (ASO) reportedly has at least one active soil moisture sensor in the Taylor area.
- The Rocky Mountain Biological Laboratory (RMBL) offers additional resources, including stream temperature and soil moisture data from scientists such as Bobbi Peckarsky, and Brad Taylor.
- The Task Force emphasized that November soil moisture is particularly important in forecasting spring runoff conditions and reservoir storage.

Carrie proposed that the Task Force begin reviewing data benchmarks at the next meeting in April and again in June. The goal is to avoid premature or inaccurate drought declarations by relying on multiple data points and historical verification of forecast accuracy.

Additional discussion highlights included:

- Steve Anders recommended using USGS WaterWatch streamflow duration hydrographs for site-specific conditions.
- Sonja mentioned the need to monitor dust-on-snow events and wind events during spring and early summer, which can accelerate snowmelt.
- Brinnen Carter asked about El Niño/La Niña patterns, and their utility for basin-specific forecasts. Carrie responded that while patterns are known, more research is needed to establish localized predictive models.
- Susan Washko noted that Jared Balik, a Gunnison-based data scientist, is building remote sensing models that could help forecast water responses to climate variables at a subbasin level. His current work on fire severity models could be adapted for drought forecasting.

Carrie concluded by offering to develop an Excel table summarizing benchmark data for each SNOTEL site in the basin. She also introduced a tool from the Weather Forecasting Center that evaluates how accurate past forecasts have been—providing a useful cross-reference for decision-making.

VI. Wrap-Up and Next Steps

Stacy Beaugh closed the meeting by thanking participants for the productive discussion and sharing that follow-up materials would be circulated via email. These will include links and resources mentioned during the meeting, as well as further opportunities for Task Force members to dive deeper into specific technical areas.

She provided a preview of the March Stakeholder Meeting, which will be held at the UGRWCD office with a zoom option. A "Save the Date" email will be sent shortly, and members are encouraged to share it widely.

The Task Force will regroup in April to evaluate the drought indicators and thresholds discussed, and to begin solidifying tools and messaging for broader stakeholder engagement.

VII. Adjournment

The next Stakeholder Meeting will be Wednesday, March 27, 2024 at 9:00 a.m.

This meeting was adjourned by Stacy Beaugh at 11:00 a.m.