

CLIMATE

CO Counties With Drought >52 Consecutive Weeks					
Start Date	End Date	Consecutive Weeks	Years	State	County
30-10-01	29-03-05	179	3.44	CO	Dolores County
03-01-06	25-09-07	91	1.75	CO	Dolores County
24-01-12	09-06-15	177	3.40	CO	Dolores County
30-10-01	10-05-05	185	3.56	CO	Montezuma County
03-01-06	25-09-07	91	1.75	CO	Montezuma County
24-01-12	29-12-15	206	3.96	CO	Montezuma County

Southwestern Colorado has experienced drought and its effects in the recent and distant past. Effects of prolonged droughts can lead to reduced snowpack, lower river flows, reduced soil moisture, and increased frequency and intensity of forest fires. The U.S. Drought Monitor at the Fort Lewis monitoring station has shown a trend of increasing intensity and duration of drought over 63 years of observations, from 1949 to 2012. Montezuma County has experienced drought greater than 52 consecutive weeks three times since 2000 (US Drought Monitor, <http://droughtatlas.unl.edu/Data.aspx>).

We invite all stakeholders to participate in efforts that maintain and improve the health and resiliency of the Mancos River and its watershed.

The Mancos River Resilience Project is a collaborative effort of the Mancos River Restoration and Resilience Group (MRR), a working group of stakeholders with a shared desire to understand the current state of the Mancos River. Together, we aim to identify opportunities for sustaining the many values of the Mancos River and building resilience within the watershed. In 2016, the Mancos Conservation District received a grant from the Southwest Basin Roundtable and the Colorado Water Conservation Board to develop this Mancos River Resilience Report by gathering existing data, summarizing the current state of the river, and identifying information needs.

The Mancos Conservation District's mission is to promote long-term sustainable use and protection of the Mancos River Watershed. We provide educational, financial and technical assistance to meet these conservation goals.

This report was developed collaboratively with many stakeholders, including: Mountain Studies Institute, Mancos Conservation District, Mesa Verde National Park, San Juan National Forest, Tres Rios Field Office- BLM, Firewise of Southwest Colorado, the Ute Mountain Ute Tribe, landowners, and citizens. To get involved or to learn more, contact:

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For the full report visit: www.mancoscd.org OR www.mountainstudies.org/waterandsnowwork/mancos

Thank you to the project sponsors: Mancos Conservation District, Colorado Water Conservation Board, the North Central Science Center, and Mesa Verde National Park.

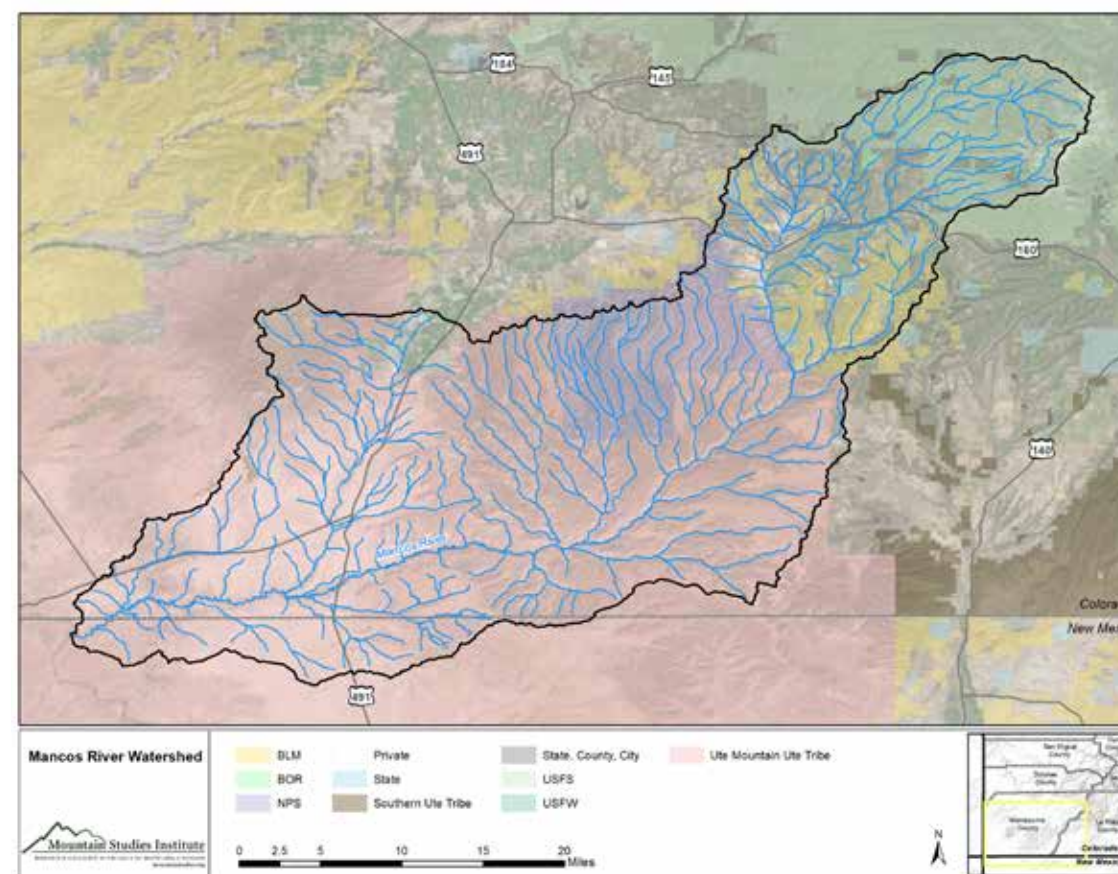


MANCOS RIVER RESILIENCE PROJECT: A Watershed Health Update

OVERVIEW

WHAT IS THE STATE OF THE MANCOS RIVER WATERSHED?

AGRICULTURE | FOREST HEALTH | RIVER HEALTH | WATER QUALITY | WATER QUANTITY



The Mancos River provides many uses and services. In order to better maintain and enhance our watershed resources, communities that rely on the river depend on relevant, local data. The Mancos River Resilience Project (MRRP) synthesizes existing information and identifies some key information gaps that, if addressed, could enhance our understanding of river health and how it supports community, economic and ecological values.

The full MRRP update is available online (see back page for link). The document shares data that addresses a set of basic questions about key watershed resources.

This update is a living document that can be refined as new information comes available. Hopefully, this information can spark thoughtful conversation among stakeholders in the watershed.

What is "resilience"? And what is watershed health?

The MRRP partners view a healthy watershed as one that is resilient and able to support the many values and uses of the Mancos River, including agriculture, riparian health, water quality, water quantity, and forest health.

SUMMARY

AGRICULTURE

What we asked:

- How is irrigation consumptive use changing?
- How efficient is our irrigation?
- How healthy are our soils?
- How much land is currently in agriculture and how is that land poised to change in the future?

What we know:

Currently, the Valley has approximately 16,000 acres of irrigated land, fed by 46 diversions. To put this in perspective, Imperial County, CA irrigates 450,000 acres with just three. The large number of diversions and ditch systems poses both short and long term challenges for irrigators in the Valley. Overall system functionality, quality of delivery, and maintenance are long term concerns for the agricultural community.

What we want to know:

- How have parcel sizes changed over time and how could this information help the MCD and partners to prioritize projects and work more closely with landowners to accomplish their goals?
- Can we work with willing landowners to establish a baseline of soil health and conduct long term monitoring efforts?



FOREST HEALTH

What we asked:

- How healthy are our forests?
- What is the wildfire risk to community and ecosystem values in the Mancos Watershed?
- What tools are available to stakeholders to reduce risk?

What we know:

“Grazing, fire suppression, and logging have greatly changed the structure of our ponderosa pine forests...Instead of being predominantly open forest structure with groups and clumps of large trees, much of the ponderosa pine now has dense, continuous canopies lacking size and age diversity.” SJNF Plan 2013

What we want to know:

- What are significant resources that may be damaged by wildfire or post-fire flooding?
- How does post-fire recovery occur in the watershed?
- What are fire regimes like in grasses and shrublands?

WATER QUALITY

What we asked:

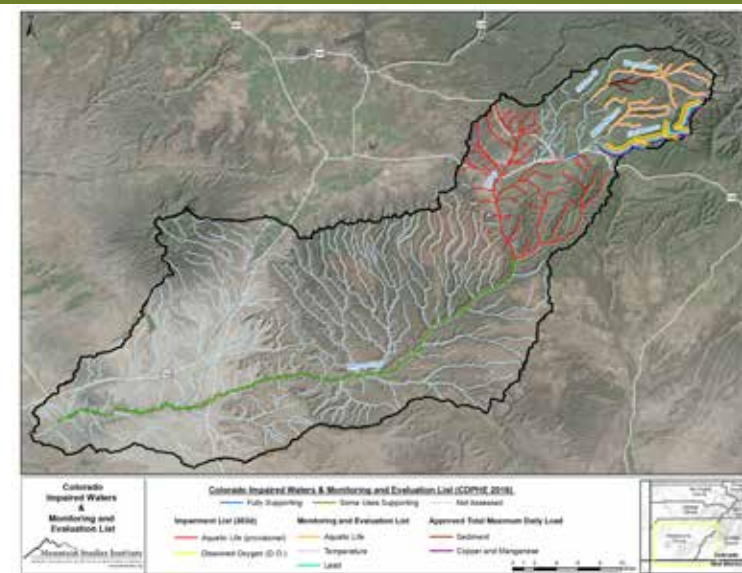
- Does water quality support current or desired needs in the Mancos watershed?

What we know:

The Colorado 2016 Integrated Water Quality Monitoring and Assessment Report identified the following water quality impairments for the Mancos River.

What we want to know:

- What is the reason for existing water quality impairments on some segments of the Mancos River?
- What can we do to improve water quality in these segments?



SUMMARY

WATER QUANTITY

What we asked:

- Is there enough water in the Mancos Watershed to meet stakeholder needs and values?

What we know:

The total volume of water flowing in the Mancos River is relatively small compared to other rivers in the region because of the relatively small size of the watershed. The amount and timing of streamflow in the Mancos River is critical to sustaining the many values that the river supports, including fish and riverside vegetation, agricultural production, and residential drinking water. For the period from 1960 to 2016, the average annual flow measured at the Mancos River near Towaoc, CO gage was 31,864 acre feet.

What we want to know:

- What river related-services do stakeholders value within specific reaches of the Mancos River and tributaries?
- In wet, dry and average water years, where (in what reaches) do water supply shortages occur within the watershed?
- What tools are available to improve the volume and/or timing of the water that supports what stakeholders value?

RIVER HEALTH

What we asked:

- What is the health of the macroinvertebrate communities in the river?
- Where are there native fish, game trout, and non-native invasive fish?
- How healthy is the riparian system within the watershed?

What we know:

Scores from the Rapid Stream Riparian Assessment surveys (RSRA) suggest there are opportunities for improving the riparian vegetation structure and cover along much of the Mancos River and its tributaries. While coldwater trout species and native warmwater species can be found throughout much of the watershed, the CPW and UMUT have found that overall fish abundance is very low. Macroinvertebrates are “canaries in the coalmine” for aquatic ecosystem health. Impairments in their overall abundance and limited sampling suggest there are opportunities to improve river health.



What we want to know:

- Are cottonwoods and other native tree species regenerating along the river?
- What flows in the Mancos River support establishment of cottonwood seedlings?
- What conditions are needed for woody shrub and tree species recruitment?
- How widespread are tamarisk, Russian olive, Siberian elm, and other invasive plant species?
- Has the abundance of each fish species changed over time in sampled reaches? If so, how and why?
- Where and how frequently does fish stocking occur? What are the goals?
- Has the abundance of each fish species changed over time in sampled reaches? If so, how and why?
- What are the most productive reaches in the Mancos Watershed for native fish? For game trout?
- How can communication and data-sharing between agencies be improved?
- Why are benthic macroinvertebrate communities in some reaches designated as impaired?