

Mancos River Science Matrix

Draft: November 11, 2016

Attending: Steve Monroe, Ann Oliver, Becca Samulski, Bob Becker, Celene Hawkins, and Marcie Demmy Bidwell

DISCUSSION

1. Purpose of the Report

Audience- Work with (1) the Watershed Plan stakeholders and (2) the constituents of the larger Mancos community that they represent.

Outcome-

1. Select values and metrics for review
2. Identifying and summarizing existing data,
3. Determining relevance of existing information to answer questions
 - a. Do we have an appropriate depth of data for trends?
 - b. Do we have information documenting data quality?
 - c. Is the data raw, processed, summarized, or quality assured?
 - d. Do we have relevant data to answer the question (geographic, baseline, etc)?
4. Identify information needs and gaps

Questions for the Science group to address?

1. Does this group want to score or rank the trends of the data?
2. Would experts want to contribute to sub-groups on resource topics?
3. Could the subgroups use expert opinion for the ranking?
4. What follow on steps would the group want to use this report beyond the group?

We discussed the challenges of establishing good data, understandable summaries, and equitable measures for the different values that are evaluated.

2. GOALS FOR APPLYING THE REPORT

1. **Mancos Conservation District**- initiating a 3-5 year planning process, to develop objectives.
2. **Mesa Verde National Park** is developing an implementation plan for restoration and management of the Mancos River in the park. They have been preparing for a larger project and seeking funding for an assessment to develop climate-smart implementation plan.
 - a. Future actions by the park need to be grounded in the potential for the Mancos River to support restoration, and the upstream partners are central to what is possible on the park grounds.
3. **Ute Mountain Ute Tribe**- two potential uses for the outcomes of the report. Originally they were motivated to join the group with an interest in assessing the potential for the Mancos River to support restoration activities. They were concerned about the potential for future wildfires and droughts to affect what restoration activities are sustainable. Second, the Tribe is participating in a drought assessment and plan with the McPhee Reservoir regarding future water supplies.

4. **Firewise of Montezuma County-** Would be interested in a forest-fire-watershed connection for connecting the watershed. It would be helpful for connecting the dots.

3. METRICS AND INDICATORS

Discussion kicked off regarding how do we want to organize around climate change as a part of this report. Would we organize around metrics that can be used to answer climate change trend questions?

Summary of different approaches that are applied:

1. San Miguel Report Card- summarized 4 topics (climate, terrestrial environment, aquatic ecosystems, land use). They included basic climate info in the report and included recommendations for monitoring going forward, however, the rest of the assessment did not have a specific climate resilience lens to the evaluation.
2. Roaring Fork Forest Health Metrics- uses 4 major goals (ecological integrity, public health and safety, ecosystem services, sustainable use and management) to select a suite of metrics (many metrics apply to multiple goals).
3. Animas River Community Forum Monitoring and Data Gaps Assessment- This group is using a “goals and questions” format for structuring the metrics that they are developing.

Synthesis of the various methods

1. Develop a list of metrics and “desired metrics” that we would love to develop for future reports
2. Would like to structure the report to address direct goals of our partners

GOALS AND PLANS- potential sources to inform the report direction

- Mancos Water Conservancy Plan
- MCD NRCS Local Work Group Annual Meeting
- Mancos River Watershed Plan
- Town of Mancos?
- Mesa Verde National Park
- Montezuma County Conservation Easements
- Montezuma County DOLA CEDS
- Mancos Trails Plan

OTHER TRENDS

We discussed potential other factors that may affect the health of the Mancos River, beyond the river quality itself. These may be informative for the future section of the report, or may be left for future efforts to cover:

1. Transition from hay production to small vegetable farms
2. Aging agricultural land owners
3. New water users,

METRICS TABLE- PROPOSED FORMAT

* See end of the minutes for the updated table-

SCIENCE MEETING AGENDA

1. Review purpose and First meeting
2. Presentation of science topics
3. Agreement on the topics, as proposed by steering committee (review table)
4. Discussion of direction of the report
 - a. Sub-committee for moving the report forward
 - b. Agreement on metrics for measuring resilience (review table)
 - c. Identify existing information
 - d. Identify known data gaps
5. Future Steps
 - a. Process-
 - i. Science synthesis
 1. Who will contribute and write it?
 2. Who directs the final report?
 3. What does the report look like?
 - ii. Stakeholder Process- proposed
 1. Meeting process
 2. Review
 - b. Outcome- Final Report Product
 - i. Present a format for the report in size, scope, budget, and receive feedback
 - ii. Balance of print vs. online content

Next Steps for December Science Meeting

1. Complete the table and circulate for comment
2. Draft agenda and circulate to Steering Committee

METRICS TABLE FORMAT

Basically, we are seeking to ask: what do we know about the state of the resource? What else do we want to know?

Topic	Goals	Question	Metric	Resources Available & Need to Know	Stakeholders & Experts
Water Quality					
	Ensure water quality sufficient to support water uses in the basin	<ul style="list-style-type: none"> • What is the state of water quality to support current or desired uses for water supply, recreation, aquatic life, and agriculture? 	<ul style="list-style-type: none"> • Ute Mountain Ute Tribal (UMUT) Water Quality Standards for Designated Uses, Water Quality Control Commission standards for water quality classified uses 	Mancos Watershed Plan Source Water Protection Plan Colorado Department of Public Health and Environment, National Park Service, Ute Mountain Ute Tribe water quality monitoring data	Colorado Department of Public Health and Environment, National Park Service, Ute Mountain Ute Tribe
		<ul style="list-style-type: none"> • What water quality standards are not being met? Where? 	<ul style="list-style-type: none"> • UMUT Water Quality Standards for Designated Uses, Water Quality Control Commission standards for water quality classified uses 	Colorado Department of Public Health and Environment, National Park Service, Ute Mountain Ute Tribe	Ute Mountain Ute Tribe
Water Quantity					
	Monitor available water sources	How much water is available?	<ul style="list-style-type: none"> • Maximum annual discharge • Minimum annual discharge • Total annual discharge • Timing of streamflow 	Mancos River Basin Instream Flow Report	Colorado Division of Water Resources, United States Geological Survey
	Monitor water uses	Do we have enough water to support these water uses in the basin: <ul style="list-style-type: none"> • Agriculture 	<ul style="list-style-type: none"> • Frequency of calls on the river by use • Flow gaps for environmental needs 	Functional Assessment of the Mancos River Watershed	Division of Water Resources, Southwest Basin Roundtable Colorado Water Conservation Board Ute Mountain Ute Tribe

Topic	Goals	Question	Metric	Resources Available & Need to Know	Stakeholders & Experts
		<ul style="list-style-type: none"> • Municipal • Recreational • Industrial • Environmental 		Mancos River Basin Instream Flow Report Division of Water Resources Call and Diversion Records	
	What are the levels of seniority without water? What water users are without water?			Functional Assessment of the Mancos River Watershed Mancos River Basin Instream Flow Report Division of Water Resources Call and Diversion Records	Division of Water Resources, Southwest Basin Roundtable Colorado Water Conservation Board Ute Mountain Ute Tribe
		What are current needs and our anticipated needs for 2025 by use?		Southwest Basin Roundtable Basin Implementation Plan and prior and ongoing SWSI Work	Southwest Basin Roundtable, Colorado Water Conservation Board
Agriculture					
	Maintain agricultural lands	<ul style="list-style-type: none"> • Do we have productive soils for desired crops? • Are our soils healthy and productive? • Are we losing soils to erosion? • Do we have sufficient crop yield? • Do we have sufficient lands available for desired agriculture? 		Rapid Watershed Assessment	Ute Mountain Ute Tribe
	Provide water through infrastructure	<ul style="list-style-type: none"> • Do we have the infrastructure and 	Extent of gated pipe, high efficiency (e.g., sprinkler) on farm systems,		Natural Resources Conservation Service, Mancos Conservation District

Topic	Goals	Question	Metric	Resources Available & Need to Know	Stakeholders & Experts
		efficiency to support water delivery?	improved diversion structures, improved (piped or lined) ditch systems, BMPs in basin		
	Support sustainable level of grazing	<ul style="list-style-type: none"> • What is the extent of grazing in the basin? • What is the quality of the forage? • What is the condition of range? 			
River Health					
	Maintain healthy fisheries	<ul style="list-style-type: none"> • Are aquatic ecosystems in the river healthy? • Do we have healthy fisheries in the watershed? • Do we have enough water for a fishery annually and seasonally? 	<ul style="list-style-type: none"> • Abundance and diversity of aquatic macroinvertebrates • Percent of native fish species and individuals • Spatial distribution of warm and cold water fish species • Is native fish population self-sustaining 	Functional Assessment of the Mancos River Watershed Mancos River Basin Instream Flow Report Rapid Watershed Assessment Mancos Watershed Plan Colorado Parks and Wildlife, National Park Service, and Ute Mountain Ute Tribe monitoring and stocking data	Colorado Parks & Wildlife, National Park Service, Ute Mountain Ute Tribe
	Support habitat in the river corridor	<ul style="list-style-type: none"> • Do we have invasive weeds? • Do we have woody cover? • Do we have connected wetland function? 	<ul style="list-style-type: none"> • RSRA metrics • Sedimentation • Channel grading • Overbank flooding • Bank erosion 	Functional Assessment of the Mancos River Watershed Rapid Watershed Assessment	Colorado Parks & Wildlife, National Park Service, Ute Mountain Ute Tribe

Topic	Goals	Question	Metric	Resources Available & Need to Know	Stakeholders & Experts
		<ul style="list-style-type: none"> Do we have channel complexity? 			
	Support desired flora and fauna	<ul style="list-style-type: none"> Do we have appropriate habitat and water flow for desired wildlife and bird species? Do we have desired flora and fauna in the watershed? 		Functional Assessment of the Mancos River Watershed	National Park Service Ute Mountain Ute Tribe
Forest Health					
		<ul style="list-style-type: none"> How healthy are our forests? 	<ul style="list-style-type: none"> Diversity of forest stands and age classes 		United States Forest Service, Bureau of Land Management, National Park Service, Ute Mountain Ute Tribe
	Promote Forest Health	<ul style="list-style-type: none"> How susceptible are our forests to insects and disease now and in the future? 	<ul style="list-style-type: none"> Insect and disease infestation 	USFS Aerial Detection Survey	United States Forest Service, Bureau of Land Management, National Park Service, Ute Mountain Ute Tribe
	Reduce wildfire risk for communities and resources	<ul style="list-style-type: none"> What is the wildfire risk in the community and our forests? Where are the values at risk? 	<ul style="list-style-type: none"> Percentage of WUI resistant to fire damage History of fire incidence and extent Critical fire risk 		United States Forest Service, Bureau of Land Management, National Park Service, Ute Mountain Ute Tribe

Potential Other topics: Community Infrastructure, Economics, Community

Climate Metrics

Topic	Goals	Question	Metric	Resources Available & Need to Know	Stakeholders & Experts
Climate					
	Temperature	Temperature	<ul style="list-style-type: none"> • Maximum annual temperatures • Minimum annual temperatures • Seasonal max/min temperatures • Growing degree days • Frost free days 	NCDC, NOAA, SNOTEL	
	Precipitation	Precipitation	<ul style="list-style-type: none"> • Annual precipitation totals • Seasonal precipitation totals • Drought Index 	NCDC, NOAA, SNOTEL	
	Extreme Events	Extreme Events	<ul style="list-style-type: none"> • Timing and magnitude of peak runoff 	NCDC, NOAA, SNOTEL	