

**Upper Colorado River Wild & Scenic Alternative Management Plan  
2021 Monitoring Plan Proposal**

The Wild & Scenic Monitoring Committee (the Committee) has developed this proposal for 2021 monitoring based on the long-term monitoring plan and input from committee members and consultants, and in conjunction with the Fishing and Floatboating Recommendations Committee. The proposal covers boating and fishing user surveys, stream temperature monitoring and analysis, biennial macroinvertebrate monitoring and analysis, and channel maintenance flow monitoring plan design and implementation. COVID-19 dramatically impacted our ability to conduct monitoring in 2020, and its impacts on 2021 have yet to be determined.

**Recreation Monitoring**

For 2021, RRC Associates has submitted a \$54,500 work plan that builds on previous efforts, continues support for the Stakeholder Group (SG) and committees, and refines methods for warehousing and accessing data. Based on anticipated data needs, this plan includes the Angling and Floatboating Intercept surveys, User Group surveys, and Displacement surveys as well as processing the BLM’s commercial data logs and vehicle counts. The Committee will work with RRC, the SG’s committees and agency representatives to develop RRC’s final scope of work for 2021. Details of the proposed RRC program are shown in Table 1, below.

*Table 1 Summary of Proposed 2021 RRC Work Program*

	<b>2020</b> <i>(Completed)</i>	<b>2021</b> <i>(Proposed)</i>
<b>Data Collection</b>		
Intercept Surveys / Observational Data Collection	\$0	\$28,000
Displacement Survey(s)	N/A	\$3,000
Self-reporting Kiosk Data Collection	\$0	\$3,000
User Group Survey(s)	\$0	\$3,000
Commercial Data Logs	\$3,000	\$3,000
Vehicle Counters*	\$2,500	\$3,500
User Day Information	N/A	N/A
<b>Data Processing, Consolidation, and Management**</b>		
Database Management	\$1,000	\$2,500
Warehousing of SG Data	\$1,000	\$2,500
<b>Stakeholder Support**</b>		
Committee Participation & Attendance	\$6,000	\$6,000
<b>TOTAL</b>	<b>\$13,500</b>	<b>\$54,500</b>

\*Assumes BLM Field Offices take primary responsibility for data collection.

\*\*These categories will be billed hourly to a “not to exceed” budget as shown.

## Temperature Monitoring

The Committee is proposing to continue the W&S-sponsored time-series temperature monitoring program through 2021, which includes three time-series temperature loggers deployed at established study sites (highlighted in orange in Table 2, below). The W&S SG is a dues-paying member of GCWIN and will contract with GCWIN to administer the three W&S temperature sites during 2021. GCWIN has been maintaining W&S temperature data in its database for several years.

In addition to the W&S temperature sites, time-series temperature data will be collected at three BLM temperature sites (COR-abvPump, COR-Rad, BL-abvCOR). Additional time-series temperature data will continue to be collected at three USGS sites located within W&S segments, as shown in Table 2, below.

Upon recommendation of the Committee, the SG approved weekly evaluation of stream temperature data, to be conducted by the Committee. The objectives for these weekly evaluations are to identify periods of thermal stress on W&S segments; provide the Committee and Stakeholder Group with timely data to make informed decisions; and assess stream temperatures against Colorado’s stream temperature standard thresholds, using the computational averaging methods that were intended to accompany such assessments. Weekly evaluations will access data from the two USGS sites with telemetry (09058000 Colorado River at Kremmling and 09060799 Colorado River at Catamount). Data from the two sites will be downloaded, processed, plotted, and distributed to the Committee on a weekly basis from June – September.

The Committee anticipates continued contracting with Lotic Hydrological to generate end-of-season thermographs and temperature standards analyses for all nine W&S sites of interest shown in Table 2.

*Table 2 Stream temperature stations for 2021*

Site ID	Station Description	Collecting / Data Storage Agencies	Latitude	Longitude
UPCO_DOT	Upper Colorado River above Dotsero	W&S/GCWIN	39.648	-107.063
UPCO_RD	Upper Colorado River below Red Dirt Creek	W&S/GCWIN	39.8	-106.974
UPCO_SB	Upper Colorado River above State Bridge	W&S/GCWIN	39.855	-106.644
9058000	Colorado River near Kremmling, CO	USGS/USGS	40.037	-106.439
9060799	Colorado River at Catamount Bridge, CO	USGS/USGS	39.891	-106.832
9071750	Colorado River above Glenwood Springs, CO	USGS/USGS	39.559	-107.29
COR-abvPump	Colorado River above Pumphouse	BLM/GCWIN	39.99	-106.508
COR-Rad	Colorado River at Radium	BLM/GCWIN	39.954	-106.55
Blue-abvCOR	Blue River above Colorado River Confluence	BLM/GCWIN	40.041	106.394

## Macroinvertebrate Monitoring

The SG has approved a long-term plan to conduct macroinvertebrate monitoring on a biennial basis. Monitoring will occur during odd years at the five sites shown in Table 3, below. Consistent with the long-term monitoring plan, the Committee anticipates contracting with Timberline Associates to conduct macroinvertebrate sampling in 2021.

Table 3 W&S macroinvertebrate monitoring sites for 2021.

Site Location	County	Latitude	Longitude
Pumphouse	Grand	39.98471	-106.514
Radium	Grand	39.94985	-106.558
State Bridge	Eagle	39.85783	-106.647
Above Catamount	Eagle	39.91239	-106.785
Below Red Dirt	Eagle	39.70996	-107.047

### **Channel Maintenance Flow Monitoring Plan Development and Implementation**

Upon recommendation of the Committee, the SG selected Stillwater Sciences Inc. as the consulting team to develop the channel maintenance flow (CMF) observational monitoring plan. The SG approved a Scope of Work developed by Stillwater and the CMF Workgroup. The kickoff meeting for CMF monitoring plan development was held on 12/20/2020. The proposed CMF monitoring plan will be presented during the June SG meeting, with the possibility of CMF monitoring activities to be considered for implementation in 2021.

### **Streamflow Monitoring**

The River District and the U.S. Geological Survey (USGS) cover operations and maintenance (O&M) costs for the USGS stream gage 09058000 Colorado River near Kremmling. The Kremmling gage operates year-round. The Bureau of Land Management (BLM), White River National Forest, and USGS cover O&M costs for the USGS stream gage 09060799 Colorado River at Catamount Bridge. The Catamount gage operates for eight months annually (March 15<sup>th</sup> – November 15<sup>th</sup>).

### **Other Monitoring Efforts**

As per the SG Plan, the Committee is charged with gathering data collected by others. Starting during the Pre-Provisional Period, the Committee has maintained collaborative relationships with a host of entities who are actively monitoring parameters of interest to the SG. Some of these agencies (and the data they collect) include: USGS (Hydrology, Temperature, Water Quality (above Glenwood)), CPW (Biosurveys, Research Projects), BLM (User Data, Commercial logs, Traffic counters, Temperature), and USFS (User Data, Commercial Logs). Because these data serve an important role in the Committee's ability to help inform SG decisions, the Committee intends to maintain and expand relationships with other organizations collecting data in the Wild & Scenic segments.

In addition, a number of new data collection activities have started in areas that overlap with W&S efforts. Due to the Grizzly Creek fire, the USGS started collecting additional water quality parameters at a number of sites. The Upper Colorado River and Gunnison Rivers were also selected for the USGS Next Generation Water Observing System (NGWOS) which will intensively monitor a broad range of metrics over the next 10 years. Both of these endeavors may result in additional data that is of interest to the W&S SG.

## 2021 Monitoring Plan – Cost Summary

The proposed monitoring plan for 2021 will cost \$107,087. The breakdown for each element is shown in Table 4, below.

*Table 4 Monitoring Budget for 2021.*

Category	2021 Cost
<b>Recreation Monitoring</b> (RRC Associates)	\$54,500
<b>Stream Temperature</b>	
– Data analysis at 9 sites (Lotic)	\$600
– Monitoring of 3 W&S temp sites (GCWIN)	\$1,000
– Purchase of 3 new temperature sensors (GCWIN)	\$487
– USGS stream temperature gauge at Kremmling (River District, in-kind)	\$0
– BLM stream temperature gauges (3 sites; in-kind)	\$0
– GCWIN membership dues	\$500
<b>Macroinvertebrate Monitoring</b>	\$15,000
<b>Hydrology &amp; Flow-Related Monitoring</b>	
– USGS stream gauges at Kremmling and Catamount (River District & BLM in-kind)	\$0
<b>Other Monitoring Activities<sup>1</sup></b>	\$35,000
<b>Channel Maintenance Flows</b>	
– CMF Monitoring Plan Implementation <sup>2</sup>	\$TBD
<b>Total:</b>	<b>\$107,087</b>

<sup>1</sup> These funds were previously approved by the SG and included in the 2020 purchase orders.

<sup>2</sup> Implementation costs are expected to vary on an annual basis, with year one higher than subsequent years.