

Upper Colorado River Wild & Scenic Alternative Management Plan

2018 Monitoring Plan Proposal

The Wild & Scenic Monitoring Committee (the Committee) has developed this proposal in conjunction with the Floatboating and Fishing Ad Hoc Committees. The Committee's proposal covers four principle areas: hydrology, stream temperature, boating and fishing user surveys, and physical/biological monitoring.

2018 Monitoring Plan – Cost Summary

Task	Cost
Streamflow & Temperature Monitoring	
Annual O&M (USGS stream gages)	\$ 0
W&S temperature stations (TidbiT sites)	\$ 2,000
RRC Research Program	
Program Essentials & Foundational Data Collection	\$ 47,500
Selective Data Collection	\$ 11,000
Macroinvertebrate Monitoring	
MMI-related sampling & analysis	\$ 5,000
Technical Support with interpretation of auxiliary indices	\$ 15,000
Substrate Monitoring/Flow Studies	
Technical support to develop recommendations	\$ 15,000
Total	\$ 95,500

Streamflow Monitoring

BLM's annual contribution covers operations and maintenance (O&M) costs for the USGS "Colorado River at Catamount Bridge" stream gage. Currently there is \$18,182 in this account¹. The Catamount gage operates for eight months annually (March 15th – November 15th) at a total cost of \$14,640 (\$1,794 per month).

NOTE: The River District would like the W&S SG to consider taking over their cost share related to O&M for the Kremmling Temperature Station in 2019. This annual commitment is currently \$1,525.

Temperature Monitoring

For 2018, the Committee is proposing to reinstate the W&S data logger program, which includes three TidbiT temperature loggers that will be deployed at previous study sites. TidbiT temperature data is downloaded manually in the field; the SG needs to identify a stakeholder or willing partner to provide this service in 2018.

¹ We anticipate \$3,542 carry-over for 2019 O&M costs. Roy Smith usually informs the SG of BLM's intentions by November of each year; this information will be essential for 2019/2020 budget planning.

In addition to data recovered from the W&S TidbiTs, temperature data is compiled from two BLM temperature data loggers and three real-time USGS stream gages that are located within W&S segments. (See Table 1)

TEMPERATURE STATION	ENTITY
09058000 Colorado River Near Kremmling, CO	USGS
COR-Pumphouse	BLM
COR-Radium	BLM
Colorado River Above State Bridge	W&S
09060799 Colorado River at Catamount Bridge, CO	USGS/BLM/W&S
Colorado River Below Red Dirt Creek	W&S
Colorado River Above Dotsero	W&S
09071750 Colorado River Above Glenwood Springs, CO	USGS

Table 1. Stream temperature stations for 2018

RRC Research Program

For 2018, RRC Associates has proposed a \$58,500 work plan² that builds on previous efforts, continues support for the SG and Committees, and refines methods for warehousing and accessing data. Based on anticipated data needs for both Ad Hoc Committees, this plan includes Angling and Floatboating field surveys regardless of 2018 year-type. The Committee is requesting approval of RRC's proposed work plan at this time, with the understanding that RRC's final 2018 scope of work is subject to consensus approval by the Monitoring Committee. The Committee will work with RRC, the SG's committees and agency representatives to develop the final scope of work.

Macroinvertebrate Monitoring

The Fishing AHC has asked the Monitoring Committee to develop macroinvertebrate sampling, analysis and reporting protocols. The Fishing AHC discussed using MMI as one level of information in addition to other information such as observed-to-expected (OTE) scores and/or *Pteronarcys* exuviae counts. In order to gather data for MMI analyses, the Monitoring Committee recommends contracting out sampling collection efforts for the four sites sampled in 2016. Samples will be collected according to BLM AIMS protocols and submitted to BLM's Bug Lab at Utah State University for analysis. At this time, the Committee estimates \$5,000 for this task in 2018, which includes \$2,500 for sample collection and \$2,500 for lab analyses, dependent upon what BLM decides to cover "in-kind". Costs are subject to change pending up-to-date bids from contractors/service providers. In addition to these fundamental MMI-related efforts, the Committee is requesting \$15,000 for technical support necessary to assist with

² See attached "Exhibit A. Suggested RRC Research Program – Upper Colorado River, 2018."

interpretation and synthesis of the 55+ indices that are automatically generated by BLM along with the MMI score, if these are adequate to Wild and Scenic purposes, and what changes in these values mean over the long-term. If scopes of work indicate a higher cost, the Monitoring Committee will request additional funds during the SG's June meeting.

Substrate Monitoring and Channel Maintenance Flow Studies

The SG Plan states that, "During the provisional period, the SG will monitor substrate, streamflows, and other conditions in Segment 4, 5, 6 to evaluate the adequacy of this provisional <Flushing flows> Resource Guide". The SG Plan also states that "During the provisional period, the SG agrees to study the extent to which channel maintenance flow guides will be incorporated in the Plan". (See page 17 of the SG Plan.) The Committee is requesting \$15,000 for technical support necessary to develop recommendations for consideration by the SG that will address these tasks prior to the end of the Provisional Period. If scopes of work indicate a higher cost, the Monitoring Committee will request additional funds during the SG's June meeting.

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), CPW (Biosurveys, Research Projects), BLM (User Data, Temperature, Macroinvertebrates), USFS (User Data), Grand County (Macroinvertebrates), and GCWIN (Water Quality). 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.

Exhibit A

Suggested RRC Research Program – Upper Colorado River

2018

The following describes the scope of work for the 2018 data management, technical support, and research efforts to be conducted by RRC Associates LLC on behalf of the Upper Colorado River W&S Stakeholders Group (SG). It documents the tasks that will constitute the work program for 2018.

RRC understands the goals of the 2018 scope of work to be: (a) to advance the pilot effort to establish baseline measures and methods that will be used to guide research and associated policy decisions in the future, (b) to continue to evaluate existing data, (c) to continue SG and Committee support, and (d) to refine methods for warehousing and accessing that data. The results of these efforts will be used in refining the Provisional ORV Indicators and Resource Guides in the SG Plan and empowering the SG and Committees to efficiently and accurately interpret the raw data and subsequent analyses.

In 2018, the work program will focus on a series of tasks including: refining new survey programs designed to permit benchmarking of data over time, obtaining additional vehicle count information, evaluating commercial data from multiple years including 2016, combining those data with intercept results and other data from previous years (2013 to 2017), and creating new tools for sharing data among stakeholders. RRC will assist the SG by organizing data on the Tableau platform and working with the SG to create protocols and develop sufficient capacity for warehousing data now and into the future.

Based on discussions with the Ad Hoc Floatboating and Fishing Committees, the 2018 work program contains a suggested line item to restart the collection of user survey data. As requested by both groups, the user surveying effort will involve the collection of data on both the Floatboating “likelihood of not returning” and Fishing CPUE metrics. Additional data on the four key factors that may affect likelihood of return (facilities, crowding, flow levels, and scenery) would also be collected. This work element is described further below, along with an outline of associated costs.

PROGRAM ESSENTIALS

Intercept Surveys / Observational Data Collection Purpose: To continue the collection of experiential and Catch per Unit data to provide statistically valid support for Floatboating and Angling ORV measures that are under discussion.	2017 Budget	2018 Proposed Budget
	<i>N/A (last conducted in 2015)</i>	\$25,000
<ul style="list-style-type: none"> The RRC team will administer the survey forms used in past years to collect data on Floatboaters and Anglers, as well as collecting observational data. The sampling and surveying protocols will be very similar to those used in the past (2013 -2015) to support systematic comparisons of year-over-year data and provide data support for the selected Floatboating and Angling measures. Two versions of the survey will be fielded: one for recreational boaters and one for anglers. The survey format will be designed so that respondents can be “branched” according to their activities (e.g., recreational boating vs. fishing) on that particular day. During summer 2018 the survey will be fielded at takeout areas identified within specific segments of the river. The schedule for intercept surveys will be developed with input from the SG to represent various flow conditions and to expand the intercept data to include surveys from Segment 6. The survey will be conducted on a sampling of days from on or about May 1 to on or about October 15. At this time the total number of survey days is estimated to be a minimum of 12 days. 		
Data Management, Analysis & Visualization Purpose: Continue to work with designated representatives to create a Tableau-based dataset that can be used by Stakeholder members on an ongoing basis. This effort will make the data more readily available to SG participants and will allow exploration of findings and hypotheses independent of RRC. Various presentation and visualization methods will be explored and warehousing of data for SG use will continue.	2017 Budget	2018 Proposed Budget
	\$10,000	\$5,000
<ul style="list-style-type: none"> <i>Database management.</i> Ongoing improvements to database to improve access and support the above identified tasks, particularly the Tableau data work. 	\$5,000	\$2,000
<ul style="list-style-type: none"> <i>Warehousing of SG data.</i> Work with the SG to determine best methods to warehouse the group’s data and create a warehousing program. Assure regular backups and data protection protocols. 	\$3,000	\$1,000
<ul style="list-style-type: none"> <i>Dashboard.</i> Under direction of the SG’s Monitoring Committee, create a “dashboard” summary of key findings and ready this summary for wide web-based distribution using a link from the SG website. 	\$2,000	\$2,000
RRC Participation / SG & Committee Support Purpose: To provide professional interpretation and presentation of research data and conclusions.	2017 Budget	2018 Proposed Budget
	\$5,000	\$7,000
<ul style="list-style-type: none"> RRC staff will continue to be involved on a periodic basis to participate in meetings, trainings, work sessions, and phone discussions regarding the data. 		

FOUNDATIONAL DATA COLLECTION

Commercial Data Purpose: To continue to expand the data base that provides a multiyear compendium of Outfitter Log data reported to federal agencies (BLM and USFS). These data provide a daily record of commercial visitation and present a longitudinal view of this important segment of river users. The commercial visitation data augment survey data and represent a readily available data source that will continue to exist long term.	2017 Budget	2018 Proposed Budget
	\$2,000	\$2,500
<ul style="list-style-type: none"> Collect 2017 commercial data from the BLM field offices and USFS. Incorporate the data into the master file and ready that file for sharing with the SG and federal agencies. 		
Vehicle Counters Program Purpose: To provide accurate counts of vehicles at a sampling of river access points. When combined with commercial data (see above), these data represent an additional measure of total visitation to the river on a daily basis.	2017 Budget	2018 Proposed Budget
	\$4,500	\$4,000
<ul style="list-style-type: none"> Place five vehicle counters at agreed-upon sites and monitor these units once they have been placed. The counters will include four of the enhanced capacity MetroCount units purchased in 2015/16, as well as a fifth unit (which is similar to those used by the BLM, requiring frequent readings to get detailed results). RRC will place and monitor units, periodically download data from the counters, and add that data to the master file. 		
Tabulation of Fee Envelope Data Purpose: These data provide information on private visitors to river sites where fees are collected, including geographic origin, length of stay, and number of people in travel party. The dataset additionally represents a benchmark that can be used to evaluate private recreation user origins over time.	2017 Budget	2018 Proposed Budget
	\$2,000	\$2,000
<ul style="list-style-type: none"> The BLM fee envelopes provide a ready data source for tracking the geographic origins of private boaters. The goal of this analysis is to establish a benchmark against which future river use can be compared. RRC will coordinate pickups of 2018 BLM private fee envelopes (organized by collection site), enter data based on a sampling of envelopes, consolidate into the master file, and present profiles of summary results based on analysis. The budget anticipates RRC processing approximately 4,000 envelopes selected randomly from the entire set of envelopes transmitted from the Kremmling Field Office. Provided that envelopes are sorted by location, RRC will sample accordingly and will create a data label to allow analysis of envelope data by location. 		
Data Consolidation & Presentation (USFS Intern and Air Temperature Data) Purpose: To provide a systematically compiled record of information obtained from two available sources that present an additional record of river conditions on a daily basis (visitation to Glenwood Canyon by commercial boaters and temperature information).	2017 Budget	2018 Proposed Budget
	n/a	\$2,000
<ul style="list-style-type: none"> RRC will consolidate USFS intern-collected intercept survey data obtained annually from Segment 7 into the existing multiyear intern data file. Air temperature data will also be consolidated into the overall database. Both datasets will be graphed and utilized as needed based on future SG requests. 		

SELECTIVE DATA COLLECTION (TBD PENDING SG'S DIRECTION)

Wade Fishing Surveys Purpose: Provides a cost-effective source of information on Catch per Unit Effort (CPUE) results from Gore Canyon wade anglers originating from the Pumphouse area. This technique is being evaluated as a cost-effective alternative to conducting intercept surveys in W&S Segment 4.	2017 Budget	2018 Proposed Budget
	\$6,000	\$1,500
<ul style="list-style-type: none"> Continue the effort started in 2017 to collect self-administered surveys from wade anglers at the bottom of Gore Canyon. This effort will continue to gather data from wade anglers estimating TFE (Total Fishing Effort) and CPUE results. The data and reporting will allow comparison with intercept survey results obtained from anglers who float the river. 		

Kiosk Surveys Purpose: Kiosk surveys would provide a cost-effective source of information on visitors in low-use areas. These kiosks would be used as a “proof of concept”; data collected by this method would be compared to information obtained from intercept surveys in the same locations to determine if this technique could be used as a long-term source of data to support a selected Floatboating ORV measure.	2017 Budget	2018 Proposed Budget
	<i>n/a</i>	\$3,500
<ul style="list-style-type: none"> RRC would oversee the placement of two kiosks in relatively low-use areas, at sites where additional experiential data is desired (e.g., Pinball and Horse Creek). 		

Outfitter/Guide Surveys and Interest Group Surveys Purpose: These surveys would gather information from two groups of users – outfitters and interest group members. This represents a “proof of concept” approach to determining whether this method could be used as a cost-effective means of augmenting data obtained from intercept surveys. These surveys would not be expected to replace intercept surveys, but could provide a means of measuring changes in experience using established benchmarks.	2017 Budget	2018 Proposed Budget
	\$5,500	\$6,000
<ul style="list-style-type: none"> Outfitter/Guide Surveys. RRC will distribute web-based surveys to elicit input from commercial guides concerning floatboating and angling aspects of the river experience. The survey instrument was developed as a pilot effort in 2017 with assistance from American Whitewater and discussions with CROA; questions would be customized for floatboating vs. angling guides/outfitters. These surveys will be conducted on or around August 15. 	\$2,000	\$4,000
<ul style="list-style-type: none"> Interest Group Surveys. RRC will continue to develop and conduct a web-based survey program that was piloted with American Whitewater in 2017. This would be fielded through cooperative efforts of W&S Interest Group members. It is anticipated that these surveys would be distributed by different entities using unique digital addresses so that the responses from their constituents can be evaluated separately and also compared. 	\$3,500	\$2,000

Summary of Estimated Costs for RRC's 2018 Work Program

Program Essentials

Intercept Surveys/Observational Data Collection (Floatboating and Angling Combined)	\$25,000
Data Management and Visualization	\$5,000
RRC Participation/Stakeholder and Committee Support	\$7,000

Foundational Data Collection

Commercial Data Logs	\$2,500
Vehicle Counters	\$4,000
Tabulation of Fee Envelopes	\$2,000
Data Consolidation & Presentation (USFS Intern and Air Temperature Data)	\$2,000

Selective Data Collection

Wade Fishing Surveys	\$1,500
Self-Reporting Kiosk data collection (including continuation of Pumphouse kiosk and two additional kiosks)	\$3,500
Outfitter/Guide Surveys	\$4,000
Interest Group Surveys	\$2,000
TOTAL 2018 not-to-exceed budget (<i>Proposed</i>)	\$58,500