

Upper Colorado River Wild & Scenic Alternative Management Plan

2019 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.

2019 Monitoring Plan – Cost Summary

Task	Cost
Streamflow & Temperature Monitoring	
Annual O&M (USGS stream gages)	\$ 0
W&S temperature stations (TidbiT sites)	\$ 500
RRC Research Program	
Program Essentials & Foundational Data Collection	\$53,900
Selective Data Collection	\$13,500
Macroinvertebrate Monitoring (<i>Placeholder</i>)	
Possible sampling, analysis &/or tech support	\$ 15,000
Flushing Flow Study	
Technical support to develop recommendations	\$ 99,976
Temperature Study (Lotic Hydrological)	\$ 6,750
Total	\$ 189,626

Streamflow Monitoring

BLM's annual contribution covers operations and maintenance (O&M) costs for the USGS "Colorado River at Catamount Bridge" stream gage. The Catamount gage operates for eight months annually (March 15th – November 15th) at a total cost to the SG of \$14,640. Currently we are anticipating that there is enough in this account to cover 2019 costs.

NOTE: The River District will provide funds to cover O&M costs for the Kremmling Temperature Station in 2019. The annual commitment is approximately \$1,525. This is the last year that the River District will provide this funding; they have requested the SG's assistance in securing funds to cover this cost in future years.

Temperature Monitoring

The Committee is proposing to continue the W&S data logger program through 2019, which includes three TidbiT temperature loggers deployed at established study sites. We will need to replace the Dotsero data logger – probably at a new site, since the data logger has gone missing several times since the current site was established. The Monitoring Committee will schedule more frequent site visits in 2019 to better assess the long-term viability of the data logger program. TidbiT temperature data is downloaded manually in the field; the River District and Confluence Casting (Jack Bombardier)

accomplished this in 2018, the SG needs to identify a stakeholder or willing partner to provide this service in 2019.

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 2019

The SG will also be working with Lotic Hydrological to complete a Temperature Inventory and Summary study in the first quarter of the 2019 W&S fiscal year. The SG approved Lotic’s scope of work and funding for this study in January 2019.

RRC Research Program

For 2019, RRC Associates has proposed a \$67,400 work plan¹ 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 in 2019. The Committee is requesting approval of RRC’s proposed work plan at this time, with the understanding that RRC’s final 2019 scope of work is subject to consensus approval by the Monitoring Committee and both AHCs supporting the scope of work. The Committee will work with RRC, the SG’s committees and agency representatives to develop RRC’s final scope of work for 2019.

Macroinvertebrate Monitoring

In 2018, Timberline Aquatics LLC completed the macroinvertebrate sampling and analysis work approved by the SG at the August 2018 SG meeting. The final results from this effort were presented in Timberline’s written report and webinar presentation during March 18, 2019. The Fishing AHC will convene a “special topic” meeting on April 8, 2019 to address plans for long-term macroinvertebrate monitoring efforts. The Committee does not expect requests for funding related to macroinvertebrate monitoring until May 2019 at the earliest. Consequently, the Committee is recommending a \$15,000 placeholder to cover macroinvertebrate-related costs that may be approved by the SG for the 2019 field season. This placeholder will be reevaluated when the SG hears back from Timberline Aquatics regarding the necessity of conducting macroinvertebrate sampling in 2019.

¹ See attached “Summary of Estimated Costs for RRC’s 2019 Work Program – *For Discussion*”

Substrate Monitoring and Flushing 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 \$99,976 to conduct a flushing flow study based on the USGS proposal to use hydrophones and underwater cameras to evaluate sediment transport. This study will be conducted at 2 locations selected by the USGS and the Stakeholder Group. In addition, the USGS will conduct a longitudinal study to evaluate sediment transport over a wider area and to further assess the representativeness of the selected sites. The River District will serve as Fiscal Agent for the CWCB Purchase Order to cover this expense, as well as the Joint Funding Agreement with USGS.

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

UPPER CO RIVER W&S STAKEHOLDER GROUP

RRC's 2019 WORK PROGRAM – PROPOSED

The following describes a proposed work plan for the 2019 data management, technical support, and research efforts to be conducted by RRC Associates LLC (RRC) on behalf of the Upper Colorado River W&S Stakeholders Group (SG). It documents the tasks that will constitute the work program for 2019.

RRC understands the goals of the 2019 scope of work to be:

- (a) to further 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.

It is recognized that the SG's Provisional Period is still in effect and that RRC will continue to assist with applying new methods of collecting information with the idea that "proof of concept" evaluation is appropriate. The results of these efforts will be used by W&S stakeholders in refining the ORV Indicators, Resource Guides and other data relevant to the SG Plan, and empowering the SG and Committees to efficiently and accurately interpret the raw data and subsequent analyses.

PROGRAM ESSENTIALS

<p><i>Intercept Surveys / Observational Data Collection (both Floatboating & Angling)</i> 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.</p>	<p>2019 Proposed Budget</p>
<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 to support systematic comparisons of year-over-year data and provide data support for the selected Floatboating and Angling measures. • During summer 2019 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 in key segments identified by the Fishing and Floatboating Ad-Hoc Committees. The survey will be conducted on a sampling of days from on or about May 1 to on or about October 15. 	<p>\$25,000</p>
<p><i>Data Processing, Consolidation and Management (5 hours per month)</i> Purpose: Continue to work with designated representatives to develop a data library and create avenues for access 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.</p>	<p>2019 Proposed Budget</p>
<ul style="list-style-type: none"> • <i>Database management.</i> Ongoing improvements to database and Tableau data visualization tools to improve access and support the above identified tasks. 	<p>\$7,800</p>
<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. 	
<ul style="list-style-type: none"> • <i>Annual Monitoring Report.</i> RRC will assist in preparing the W&S Annual Monitoring Report. 	
<p><i>Stakeholder and Staff Support by RRC (10 hours per month)</i> Purpose: To provide professional interpretation and presentation of research data and conclusions.</p>	<p>2019 Proposed Budget</p>
<ul style="list-style-type: none"> • RRC staff will continue to participate in W&S committee meetings, data review support and coordination, and assist with discussions on new methods of data collection and evaluation. 	<p>\$15,600</p>
<ul style="list-style-type: none"> • RRC will make minor revisions to the Survey Protocol for the Floatboating Ad-Hoc Committee, to reflect adjusted approaches in 2019 	
<ul style="list-style-type: none"> • Create a Survey Protocol for the Fishing Ad-Hoc Committee 	

FOUNDATIONAL DATA COLLECTION

<p>Commercial Data Logs Purpose: To continue to expand the data base that provides a multi-year compendium of Outfitter Log data reported to federal agencies (BLM and USFS). These data provide a daily record of commercial visitation and present a multi-year view of this important category of river users. The commercial visitation data augment survey data and represent a readily available data source that will continue to exist long term.</p>	<p>2019 Proposed Budget</p>
	<p>\$2,500</p>
<ul style="list-style-type: none"> Collect available 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. 	

<p>Vehicle Counters 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.</p>	<p>2019 Proposed Budget</p>
	<p>\$3,000</p>
<ul style="list-style-type: none"> This task assumes BLM placement of counters at up to ten locations. RRC will aggregate and analyze results and will organize data for multi-year comparisons. Assumes that Rob Buirgy can assist with coordination with BLM offices and oversight of data collection efforts. RRC’s role will be primarily data aggregation and analysis. 	

SELECTIVE DATA COLLECTION (TBD PENDING SG’S DIRECTION)

<p>Self-Reporting Kiosk data collection 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.</p>	<p>2019 Proposed Budget</p>
	<p>\$5,500</p>
<ul style="list-style-type: none"> RRC will oversee maintenance and data collection at one existing intercept kiosk, and construction, maintenance and data collection and aggregation from three additional intercept kiosks. Continue the effort started in 2017 to collect self-administered surveys from the existing wade-fishing kiosk at the Pumphouse Recreation Area (at the bottom of W&S Segment 4). This effort will continue to gather data from wade anglers estimating TFE (Total Fishing Effort) and CPUE results. 	

SELECTIVE DATA COLLECTION (CONTINUED)

<p><i>Outfitter/Guide Surveys</i> <i>Purpose:</i> These surveys would gather information from commercial outfitters and guides. 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.</p>	<p>2019 Proposed Budget</p>
<ul style="list-style-type: none"> 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. This includes expanded outreach to outfitter/guide services. 	<p>\$6,000</p>

<p><i>User Group Survey(s)</i> <i>Purpose:</i> These surveys would gather information from W&S Interest Group members. This also 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.</p>	<p>2019 Proposed Budget</p>
<ul style="list-style-type: none"> 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 with W&S Interest Groups. It is anticipated that these surveys would be distributed by different entities (potentially both floatboating and fishing interests) using unique digital addresses so that the responses from their constituents can be evaluated separately and also compared. 	<p>\$2,000</p>

Summary of Estimated Costs for RRC's 2019 Work Program

Program Essentials

1) Intercept Surveys/Observational Data Collection	\$25,000
2) Data Processing, Consolidation and Management	\$7,800
3) Stakeholder and Staff Support by RRC	\$15,600

Foundational Data Collection

1) Commercial Data Logs	\$2,500
2) Vehicle Counters	\$3,000

Selective Data Collection (TBD pending SG's direction)

1) Self-Reporting Kiosk data collection	\$5,500
2) Outfitter/Guide Surveys	\$6,000
3) User Group Survey(s)	\$2,000

TOTAL 2019 not-to-exceed budget (Proposed) \$67,400