

- I. Project Title: Geomorphology Work
- II. Bureau of Reclamation Agreement Number(s): N/A
- III. Principal Investigator(s):
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- IV. Abstract: Refining flow recommendations and channel monitoring is becoming increasingly important as the Recovery Program moves from a research-oriented program to implementing flow protection through projects such as coordinated reservoir operations, re-operation of dams, instream flow protection, and levee removal. To ensure that future geomorphology and channel monitoring projects are designed properly, the Recovery Program established a peer review process/panel.

In 2016 based on recommendations in the Peak Flow Technical Supplement techniques to evaluate the health of river geomorphology, David Topping (USGS) and Jana Mohrman wrote a scope of work for sediment monitoring in the Green River. It was presented and approved in the WAC, BC, and the MC.

On the Green River the UCREFRP is interested in: (1) describing and quantifying the existing sediment equilibrium conditions (or range of equilibrium conditions) as a function of the magnitude and timing of inputs of sediment and water; and (2) understanding if/how sediment balance/imbalance propagate downstream. This requires developing a sediment mass balance as a function of historical and existing flows; and determining the annual flow volume and nature of streamflows required to transport sediment delivered to these river reaches. This requires a robust sediment monitoring campaign using continuous measurements at high temporal resolution, such that the sediment evacuation/accumulation can be measured independently without relying on inherently inaccurate sediment rating curves.
- V. Study Schedule: Monitoring will begin in 2017; the budget assumes a cost share by the NPS at Jensen for 2017 and installation of a new site at Ouray, then full payment at Ouray and Jensen the next 4 years. The budget for Project No 85f is \$55,080 for FY2017 and \$39,731 for 2018 through 2021
- VI. Relationship to RIPRAP: General Recovery Program Support Action Plan I. Provide and Protect Instream Flows

VII. Accomplishment of FY 2016 Tasks and Deliverables:

Justin (Toby) Minear, of the USGS, used a hydrophone in the Gunnison River over a weekend. He caught the ramp-up flows nearly perfectly, sampling each day from the 13th to the 16th when flows went from 5,000 cfs to just over 9,000 cfs. There were a number of sites moving bed load at 5,000 cfs (mostly riffles) and nearly all the locations except pools were moving at 9,000 cfs, though there was much more movement occurring during the higher flows. He'll process the data and present it at the 2017 Researchers meeting.

VIII. Additional noteworthy observations: None.

IX. Recommendations: Continue work with hydrophones both for suspended and below material.

X. Project Status:

XI. FY 2016 Budget Status

A. Funds provided:	\$10,000
B. Funds expended:	<u>\$5,000 for hydrophones in the Gunnison</u>
C. Difference:	\$5000

XII. Status of Data Submission (Where applicable): N/A

XIII. Signed: Jana Mohrman 10/28/2016
Principal Investigator Date