

**SJRIP Videography and San Juan and Animas Rivers Temperature Gauges
2016 Project Proposal**

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BACKGROUND:

High definition videography is used in the SJRIP to develop maps of the river and evaluate habitat relationships and provide a database that can be used to compare future conditions. Videography is also used for habitat mapping and developing fish-habitat relationships when requested. The videography is done in the late summer during base-flow conditions in an attempt to standardize the information with flows. Often the video is flown in connection with another trip to control costs.

Temperature information is required at several gauges in the San Juan River at the following locations:

09355500 - San Juan River near Archuleta, NM - Real time on web

09365000 - San Juan River at Farmington, NM - Real time on web

09364500 - Animas River at Farmington, NM - Stand alone temperature probe until we can get access to install a wired probe.

09381010 - San Juan River at Four Corners, CO - Real time on web (after we configure our database on Monday).

METHODS:

Aerial Imagery

Aerial imagery is collected along the river by using a helicopter which enables following the river corridor. The helicopter is equipped with a belly camera port which allows interior mounting of 2 cameras. In this case an HD video camera and a high resolution digital camera. The imagery is collected at an altitude that produces 5-6 frames per river mile.

- 1) Office of Aviation Services (OAS) manages the flights with an executed modification to an existing IA
- 2) Richard Davis (208-334-9315) at OAS is the person to contact to get the flights scheduled
- 3) Both video (HD) and still photos (25mp) are shot and the equipment, including the Tyler mount for mounting the photo equipment to the helicopter, is provided by BOR (Bill Goettlicher and Andrew Pernick)
- 4) A Bell 206 L1 or L3 helicopter is required to do the work.
- 5) A completed AQD-91 "Order Request Form for Government Flight Services" is required. This form needs to be submitted to AQD91@ibc.doi.gov a minimum of 5 days before the planned start date. The website for the form and instructions: <http://oas.doi.gov/apmd/>

Mission requirements are:

- 1) All filming done at approx 1500 ft AGL (a laser altimeter is nice, but not required)
- 2) Filming speed at approx 40-60 kts
- 3) River level for flight should be less than 1,000 cfs
- 4) Day1 - Approx. 10 am - Start filming at the confluence of the San Juan R. and The Animas R. which is in Farmington, NM.

- 5) Film downstream (west) to approx. Four Corners or Bluff return to base of operations (Farmington/Durango,CO)
- 6) Day 2 - Approx. 12 noon - Be on river filming from previous stopping point
- 7) Continue filming downstream(including the Goose-necks) to Lake Powell (add 2 hours ferry time worst case to return once more to base of operations to disassemble equipment).
8. End of mission. (Ferry times may vary depending on logistics of helicopter/ personnel locations; but worst case is given here)
9. The total river mile distance to film is about 225 miles.

- A. BOR will provide Tyler mount w/base plate.
- B. BOR will provide all camera equipment.
- C. BOR will provide staff to operate the equipment and provide route guidance during flight.

MISC.

A helicopter with a 12v DC source that we can connect our inverter to would be preferred. But we should be able to get by on batteries for all our photo equipment.

Animas River Gauge

The USGS has installed and maintains 4 temperature probes in the San Juan basin per our agreement. Probes were installed at:

09355500 - San Juan River near Archuleta, NM - Real time on web

09365000 - San Juan River at Farmington, NM - Real time on web

09364500 - Animas River at Farmington, NM - Stand alone temperature probe until we can get access to install a wired probe.

09381010 - San Juan River at Four Corners, CO - Real time on web (after we configure our database on Monday).

Data will be displayed real time via the USGS NWIS web.

The aerial images are obtained from OAS with the following contact:

Richard Davis
Personal (208) 890-1222
richard_davis@ios.doi.gov
300 E Mallard Dr, Suite 200
Boise, ID 83706-3991
Main Office Phone: 208-433-5076

The probes are maintained by USGS with the following contact:

Jay Cederberg
Albuquerque Field Office Chief
USGS, New Mexico Water Science Center
5338 Montgomery Blvd., NE, Suite 400
Albuquerque, NM 87109
505.830.7924 | fax: 505.830.7986
cederber@usgs.gov
Visit us on the web: <http://nm.water.usgs.gov>

TASKS – 2016

1. Fly San Juan River with vertically oriented camera and take HD video and high res. digital stills.
2. Periodically provide specific images that are rectified for detailed mapping.
3. Archive video/still frames and provide to researchers as requested.
4. Operate and maintain water temperature probes at four different locations in the San Juan River Basin

FY 2016 BUDGET

Task	Expenditure in FY2016
Aerial Flight	\$23,000
Temperature probes	\$20,000
Total	\$43,000

Projected funding:

FY-2017 \$45,000.00

FY-2018 \$46,000.00