

COLORADO RIVER RECOVERY PROGRAM  
FY 2016 ANNUAL PROJECT REPORT

RECOVERY PROGRAM  
PROJECT NUMBER: 19

I. Project Title: General Hydrology Support

II. Bureau of Reclamation Agreement Number(s): R13PG40019 expires September 30, 2017.

Project/Grant Period: Start date 1990  
End date: ongoing  
Reporting period end date: ongoing  
Is this the final report? Yes \_\_\_\_\_ No  x

III. Principal Investigator:  
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IV. Abstract:  
The Service's hydrologist provides basic hydrology support to Recovery Program researchers. Accomplishments during FY 2015 include: 1) coordinating and posting temperature data at sites on the Colorado, Green and Gunnison River, 2) providing technical hydrology support for a wide range of Recovery Program activities; and 3) supporting the Recovery Program in basic data collection and monitoring projects' efforts relating to hydrology.

V. Study Schedule: Initial Year - 1990 Final Year – Ongoing

VI. Relationship to RIPRAP:  
General Recovery Program Support Action Plan  
I.A.4.b. Conduct needed Geomorphology research and monitoring.

Green River Action Plan: Mainstream  
I.A.3. Deliver identified flows.

Colorado River Action Plan: Mainstream  
I.E. Evaluate and revise as needed flow regimes to benefit endangered fish populations.

Colorado River Action Plan: Gunnison River  
I.D. Evaluate and revise as needed flow regimes to benefit endangered fish populations.

VII. Accomplishment of FY 2016 Tasks and Deliverables,

Temperature data collection went well during FY-2016. Two locations on the Gunnison River, five locations on the Colorado River and seven locations on the Yampa and Green River were

checked semiannually and calibrated with on-site temperature readings. Temperature data collection on the Colorado River by CRFP was consolidated in this Scope of Work beginning in FY- 99 and a separate budget table is included for this work. The information for these temperature data can be found at: <http://www.r6.fws.gov/riverdata/>

19B Project Title: General Hydrology Support - (CRFP - Grand Junction contribution)

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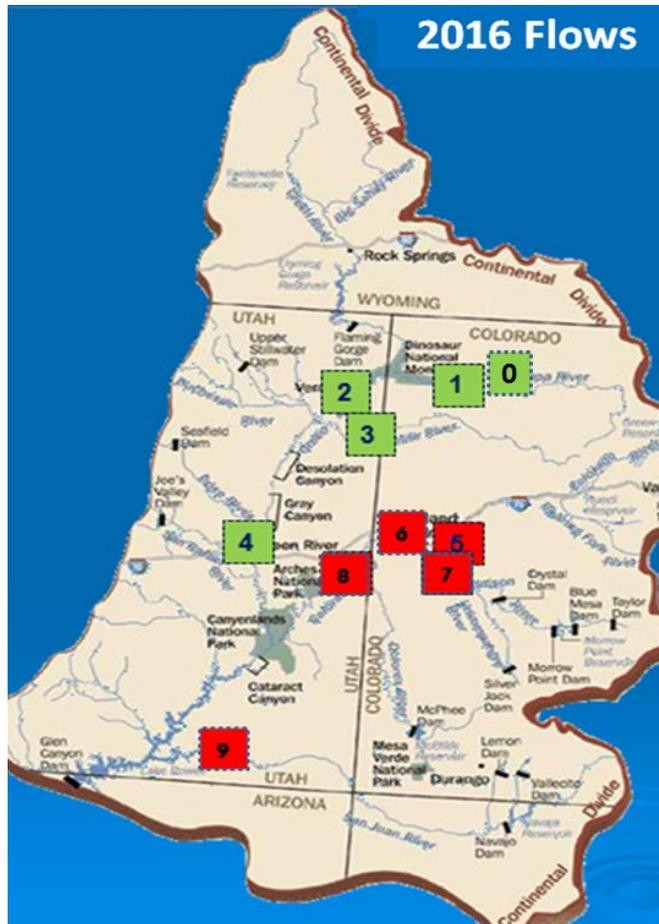
Performance:

The Service's Division of Water Resources provides basic hydrology support to Recovery Program researchers and undertakes tasks to support the Recovery Program in basic data collection and monitoring projects. The work provided is, for the most part, in support of other research projects or activities such as flow delivery, flow quantification, and habitat restoration, all of which have a direct impact on the recovery of the Colorado River endangered fish. One task is the collection of water temperature data in various reaches of upper basin rivers. Temperature monitoring duties are divided between the Division of Water Resources Regional Office staff (Denver) and the Colorado River Fishery Project's Grand Junction field station (CRFP-GJ). CRFP-GJ currently collects water temperature data from five sites on the mainstem Colorado River, four sites on the Gunnison River and one site on the Uncompahgre River. These data, along with those collected by the Water Resources staff for the Green, Yampa and Gunnison rivers are assembled into a temperature database for use by Recovery Program researchers.

Temperature data for FY-16 was downloaded in the field during July and October, 2016 one-hour interval readings were converted to daily means and then sent to Jim Renne a volunteer for the Program. The site-specific daily-mean tables were completed (during winter 2015-2016). Temperature data for FY-16 are currently in the process of being downloaded. This work should be completed by the end of December 2016 (i.e., during FY-17).

Temperature data collection began in 1986 at two Colorado River stations, Palisade (rk 292.8) and Walker (rk 264.7). Over the years other sites have been added: Rulison in 1994 (rk 369.9), Dewey in 1994 (rk 154.5) (discontinued), Gold Bar in 1992 (rk 83.7)(discontinued) and The Slide upstream of the Green River confluence in 2000 (rk 2.9). A site on the Gunnison River at People's Orchard (rk 63.9) was added in 1999; one downstream of the North Fork confluence (rk 117.5) was added in 2007, one at the NPS Never Sink recreation access area (just upstream of the Blue Mesa inflow) was added in 2007, and one just upstream of the confluence with the Uncompahgre River (rk 90.9) was added in fall 2008. These additional Gunnison River sites were added in an





	River	Location	Mean Daily Peak	2016 Peak	% of Avg Peak
1	Yampa	<i>Deerlodge Park</i>	12,500	15,600	125%
2	Green	<i>Jensen</i>	16,500	20,500	124%
3	White	<i>Watson</i>	2,400	2,330	97%
4	Green	<i>Green River</i>	18,500	24,200	131%
5	Colorado	<i>Cameo</i>	14,000	19,200	137%
7	Gunnison	<i>Grand Junction</i>	8,000	9,920	124%
8	Colorado	<i>Cisco</i>	23,000	24,500	107%
9	San Juan	<i>Bluff</i>	11,730	8,140	69%

	<b>River</b>	<b>Location</b>	<b>% Aug-Oct Avg</b>	<b>Minimum</b>
<b>0</b>	<b>Yampa</b>	<i>Maybell</i>	<b>91%</b>	<b>83</b>
<b>1</b>	<b>Yampa</b>	<i>Deerlodge Park</i>	<b>59%</b>	<b>138</b>
<b>2</b>	<b>Green</b>	<i>Jensen</i>	<b>97%</b>	<b>1,770</b>
<b>3</b>	<b>White</b>	<i>Watson</i>	<b>82%</b>	<b>145</b>
<b>4</b>	<b>Green</b>	<i>Green River</i>	<b>99%</b>	<b>1,940</b>
<b>5</b>	<b>Colorado</b>	<i>Cameo</i>	<b>93%</b>	<b>2,010</b>
<b>6</b>	<b>Colorado</b>	<i>Palisade</i>	<b>80%</b>	<b>657</b>
<b>7</b>	<b>Gunnison</b>	<i>Grand Junction</i>	<b>139%</b>	<b>1580</b>
<b>8</b>	<b>Colorado</b>	<i>Cisco</i>	<b>104%</b>	<b>3470</b>
<b>9</b>	<b>San Juan</b>	<i>Bluff</i>	<b>48%</b>	<b>500</b>

The forecast for water year 2017 unregulated inflow to Lake Powell, issued on October 1, 2016, by the Colorado Basin River Forecast Center, projects that the most probable (median) unregulated inflow volume next year will be 9.24 maf (85% of average). There is significant uncertainty regarding next season's snow pack development and resulting runoff into Lake Powell. The forecast ranges from a minimum probable of 6.0 maf (55%) to a maximum probable of 17.0 maf (157%). There is a 10% chance that inflows could be higher than the current maximum probable forecast and a 10% chance that inflows could be lower than the minimum probable forecast. <http://www.usbr.gov/uc/water/crsp/cs/gcd.html>

VIII. Additional noteworthy observations: 2016 accomplishments:

Worked with WAC using the spreadsheet summarizing all existing flow protection and possible future needs

Coordinated the collection of temperature data and USGS gages contracts in Utah and Colorado. Sandi Spivey accompanied Jim Renne on the Yampa and Green River temperature run. Jim retired in 2015; he has collected temperature data for the Recovery Program for 25 years and will continue to do so in retirement.

Updated the status of the instream flow elements for the RIPRAP to determine whether the Program is making sufficient progress. Provided hydrologic graphs and tables describing the water conditions and how the program met the flow targets.

Chaired the WAC committee and worked on the GRUWAT, GREAT, FGTWG, LTSP, and Geomorphology Committee.

Coordinated reservoir releases (CROS) on the Colorado River, and Yampa River from May through October.

Wrote a scope of work with USGS to collect suspended sediment in the Green river using sonar.

Worked on the White River flow recommendations with the help of USFWS's Tom Econopouly.

Supervised a college student to consolidate 3 sets of water files.

Worked on a committee to automate the Maybell ditch diversion.

Presented the 2016 plan for Ruedi releases in Basalt, CO. Worked with CWCB to administer 12,000 acft of UTE's leased water from Ruedi.

Jana collaborated with Tom Chart on a summary of the PBO success in the 15-mile reach, coordinated USGS to collect hydrophone data on the Gunnison River .

Coordinated releases on Yampa River using entire pool in Elkhead. There will be no carryover water, just the annual 5000 acft for 2017.

Manned the trade booth for Utah's, Wyoming's, Gunnison's, and Colorado's Water users meetings. Wrote news releases for a successful CROS release, and wrote a newsletter article about getting along at the waterhole. Worked with a Vail and Denver Post's reporters to describe operations at the 15-mile reach.

IX. Recommendations: The work provided supports other research projects or activities such as flow delivery, flow quantification, and habitat restoration, all of which have a direct impact on the recovery of the Colorado River endangered fish. We recommend the continuation of current efforts.

X. Project Status: Ongoing and on-track

XI. FY 2016 Budget Status

A. Funds provided: \$150,603

B. Funds expended: \$150,603

C. Difference: - 0-

XII. Status of Data Submission Data submitted as completed

XIII. Signed: Jana Mohrman November 10, 2016  
Principal Investigator Date