

COLORADO RIVER RECOVERY PROGRAM
FY 2013 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: 19

I. Project Title: General Hydrology Support

II. Bureau of Reclamation Agreement Number(s): R10PG40084

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 Division of Water Resources provides basic hydrology support to Recovery Program researchers. Accomplishments during FY 2013 include: 1) collecting temperature data at sites on the Colorado, Green and Gunnison River, and assembling a temperature database for use by Recovery Program researchers; 2) providing technical hydrology support for a wide range of Recovery Program activities on a year-to-year basis; and 4) and undertakes tasks to support 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 2013 Tasks and Deliverables,

Temperature data collection went well during FY-2013. Thermographs at four locations on the Gunnison River, five locations on the Colorado River, and seven locations on the 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 gages can be found at: <http://www.r6.fws.gov/riverdata/>

Temperature monitoring duties are also provided by the Colorado River Fishery Project (CRFP), Grand Junction & Vernal fisheries office. The Grand Junction CRFP station collects water temperature data from five sites on the mainstream Colorado River, all others are collected by CRFP for this project summarized Colorado and Gunnison River data sets for the period 1986-2012 and converted mean daily temperatures to annual thermal units for Colorado pike minnow growth. A manuscript describing these analyses was prepared over the last few years for submission to a scientific journal. In FY 2010, the article was accepted for publication in River Research and Applications. It was published online and appeared in print in summer of 2011.

UPPER COLORADO RIVER RECOVERY PROGRAM PROJECT NUMBER: 19b

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

Principal Investigator: Travis Francis, Fish Biologist
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Performance:

Temperature monitoring duties are divided between the Division of Water Resources Regional Office staff (Denver) and the Colorado River Fishery Project (CRFP), Grand Junction field station. The Grand Junction CRFP station 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 2012 was downloaded in the field during October-November, 2012. Two-hour interval readings were converted to daily means and then sent to Division of Water Resources when the site-specific daily-mean tables were completed (during winter 2012-2013). Temperature data for FY 2013 are in the process of being downloaded. This work should be completed by the end of November 2013. Two-hour interval readings will be converted to daily means and then sent to Division of Water Resources once the site-specific daily-mean tables are completed (during winter 2013-2014).

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), Gold Bar in 1992 (rk 83.7) 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 effort to provide better data for future temperature modeling efforts for management of Aspinall Unit releases. The Dewey site on the Colorado River was discontinued in 2007 when it was found that USGS had established their own temperature monitoring sensor at their streamflow gauging station.

In previous years, data were recorded using TempMentor (Ryan Instruments, Redmond, Washington) thermographs. These units were later replaced with StowAway brand TidbiT v2 Temp UTBI-001 (Onset Computer Corporation, Bourne, Massachusetts) temperature loggers (accurate to 0.2°C). Loggers are placed in sites where depth and velocity will safeguard against dewatering and shoreline warming. Data are downloaded 1-2 times annually. Mean daily temperatures (MDT) are calculated from readings taken every two hours and reported to the nearest 0.1°C. In recent years, a second, backup logger has been deployed at some sites to ensure data collection when loggers become lost, stolen, or buried in sediment.

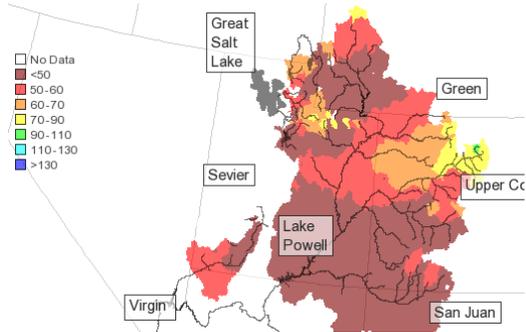
Beginning with 2005, annual data were summarized as mean daily temperatures in Excel spreadsheets following the format used by USGS in their Water Resources Data yearbooks. The spreadsheets are forwarded to Carrie Cordova of FWS Water Resources who web enables them and links them to the Riverdata Web Page. The temperature data can be accessed and downloaded from the Riverdata web page at <http://www.r6.fws.gov/riverdata/> or by email request from FWS Division of Water Resources. GPS locations for each thermograph are available by request; for security purposes the exact locations are not provided on the web page.

We recommend continuation of the current data collection efforts at the established sites. We feel that a couple of additional temperature monitoring sites added to the White River would be instructive.

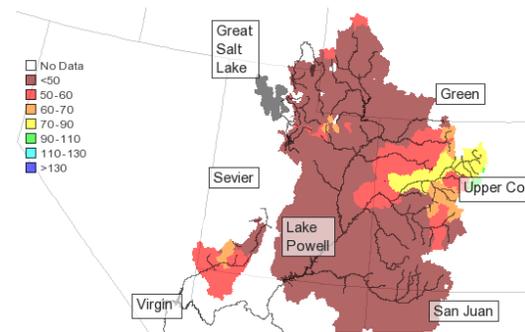
B. Hydrology Support for Biological Opinion Development and Monitoring

The Service's hydrologist provides hydrology support to Recovery Program researchers and undertakes tasks to support the Recovery Program with data collection and monitoring projects. Snowpack in 2013 was quite low, similar to the drought year of 2012 and 2002 improving by the beginning of June (see graphics below). Dry targets were met downstream of the Aspinall units under the new ROD and at Jensen downstream of Flaming Gorge. At the Colorado River at Palisade and Yampa River at Maybell flow dipped below Recovery Program targets just a few times, but mid-September rains improved drought conditions.

May 1, 2013



June 1, 2013



Even though flows were low there was excellent real-time coordination between USFWS, UDWR, BOR, and others on implementation of the USFWS flow proposal in response to larval presence and rising/falling water levels to maximize entrainment of razorback larvae in Green River wetlands (see Dave Speas PowerPoint).

<http://www.usbr.gov/uc/water/crsp/wg/fq/pdfs/FG%20work%20group%20Aug%2021%202013.pdf>

PIT Tag GIS: the raw data is late because staff has to perform multiple tasks due to no backfilling positions under sequestration: <http://gis.fws.gov/EndangeredFishRecoveryProgram/>

For the second year in a row flows were low in the mainstream of the Colorado River and some reservoirs did not fill which caused cancellation of the Coordinated Reservoir Releases (CROS).

Table 1. Baseflow targets and 2013 trends

2013	Dry target	Wet target	Jul-Oct AVR	Spring peak	Annual Min
Yampa R. at Maybell	93	200	317	7,350	78
	Dry	Mod Dry			
Green R. at Jensen	900 - 1100	1100 - 1500	1,593	10,600	1,370
	Dry	Avg			
Colorado R. at Palisade	810	1240	1,017	1,490	51
	Dry	Avr Wet			
Gunnison R. at GJ	890	1050	1,468	3,150	610
	Min				
Duchesne R. at Randlett	50		63	197	26
	Dry	Mod Dry			
White R. at Watson	300	400	289	1,600	73
	Dry	Mod Dry			
Price River at Woodside	15	22	138	76	0

Yampa River: In 2013 an additional 1000 acft was bought at the beginning of May, but by the end of May from Elkhead reservoir to meet flow targets drought in the weekly calls were continued for interested parties to involve the water community regarding local releases and the Elkhead fish water, following the format of the 15-mile reach weekly call. This year I kept notes

and shared them with the group after the calls.

White River Management Plan: The SOW was approved at August 14, 2013 MC. We held 3 public meetings; Vernal, Craig and Rangely. There were 65 attendees between all meetings, with the majority at the Roundtable. In a letter the Service introduced the SOW to the Ute Tribe that dealt with several other endangered species issues, but requested to meet with them separately in the future. Our half-time external affairs person, Leith, distributed a press release just before he was furloughed. Melanie sent out a beautiful postcard to all water rights holders in Utah. We also emailed an invitation to 153 folks, including the various committees and the Yampa/White/Green River Roundtable. Per Dave Speas's suggestion, I contacted the BLM (both Colorado and Utah) and included them in the list of partners in the final SOW. Although they were called and invited to the public meetings, because of the furlough they were didn't attend.

Colorado State Water Plan: Becky Mitchell, lead for the Colorado State Water Plan. She explained that the plan is grass roots effort in which the roundtables have 1 year to respond with their plans. I spoke with all 3 roundtables in our basin; Dave Kanza on the Gunnison, Jim Pokrandt on the Upper Colorado and Geoff Blakeslee on the Yampa/White/Green roundtables. They said the endangered fish needs were built into all of their non-consumptive use plans which are used in the implementation plans.

Geomorphology Committee: has met 4 times and has prioritized reaches to reevaluate the flow recommendations. The group hopes to have a White Paper that supports a SOW composed before January.

Committee members:

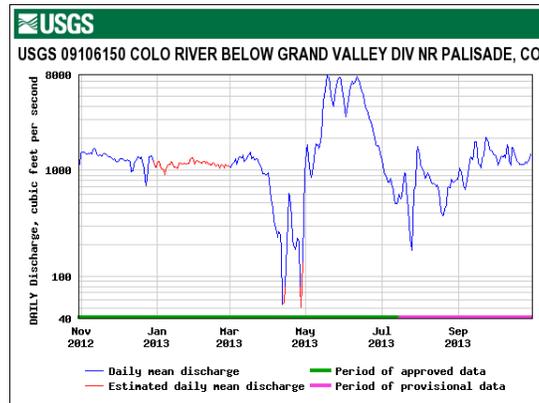
Kirk LaGory	Chairman (Argonne Labs)	Tom Pitts (Water Users)
Jack Schmidt	(USGS)	Tom Chart (PDO)
Toby Minear	(USGS)	Dan Luecke (WRA)
Paul Grams	(USGS)	John Pitlick (CU)
Cory Williams	(USGS)	Bob Mussetter (Tetrattech)
David Lytle	(USGS)	Jana Mohrman (FWS)
David Topping	(USGS)	

GRUWAT: September 4, 2013 Mike Styler Executive Director of the Utah Department of Natural resources requested an extension for the Green River flow protection work plan by two years (2017). The group is a year late with modeling as a result of the delays with the Bureau of Reclamations model runs.

15-Mile Reach: new 10825 pools, in mid-July releases from the 5412 from Granby began for the 15-mile reach. Grand County's trout habitat also benefited from the Program's fish water. Both the Program and Granby focused on using all the water in September because it was hot and dry. Grand County requested that flows be constant during the Brown trout spawn and thought it best to finish using the fish water before the Bureau cut back to 20 cfs on Oct. 1 for the rest of the winter. When the climate changed from dry to wet in mid-September the Granby water was not needed in the 15-mile reach. To offset Granby's release (starting ~ 9/11/13) the reservoir operators rose to the occasion and retimed and cut back releases, letting the Granby water supply downstream needs. We were able to carry over some of this water in Williams Fork reservoir

(1,235 acft) and Wolford reservoir (223 + 2,999 acft from the 6,000 acft pool) for 2014 because conditions stayed above the medium target (1,240 cfs) in the 15-mile reach. We hope to find out more about the Brown Trout constraints, but we were quite pleased with the quick acting cooperation of the reservoir operators.

“April Hole”: we are working on a draft White paper which will be shared with a group of concerned individuals before it’s presented to the group of cooperators in the Grand Valley.



2013 hydrology: Green Mountain Reservoir didn’t fill; there was no fish water from the HUP users pool until late September after the rains. In mid-September the climate changed from a dry to wetter, therefore some carry-over was generated for 2014

Hydrology updates were presented to these meetings; Biology Committees, Management Committees, a Grand Junction Irrigators meeting, Town of basalt Public meeting and Tom Chart presented this data for the Annual Researchers meeting.

News Releases: 1.) to notifying of cancellation of the coordinated reservoir operation because some reservoirs did not fill. 2.) for three public meetings regarding the SOW White River management plan

Public outreach was cutback due to sequestration; we manned a Recovery Program booth at Colorado’s water congress for two days and in Las Vegas for two days.

Blue Cut proposed agreement: The uncertainties about the Service water right and Desert Lake water would be removed; Blue Cut and Mammoth canals would be piped; 3cfs year-round “Wet” water would be provided to the San Rafael River; Water from Desert Lake might be available to augment flows in the Price River in the future; and Upper reaches of the San Rafael also would benefit. The Recovery Program is not party to the agreement, but it is of interest to the Program, Reclamation and Utah informed the WAC

VIII. Recommendations:

The work provided is 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. We recommend the continuation of current efforts.

- Work with the Green River Water Acquisition Team (GRUWAT) in formulating the Green River flow protection plan with the State of Utah to be complete by 2015 (Utah's request extended of 2017? Needs to be considered by the WAC).
- Coordinate Grand Valley Water Users meetings
- Complete the contract and begin work on the management plan for the White River
- Coordinate writing a new SOW for the geomorphology committee recommendations
- Work on a water management plan to release water from Desert Lake WMA to the Price River
- Coordinate with Roundtables on the State Water Plan
- Temperature data collectors from the Regional Office have accrued new duties. We need to transition new temperature data collectors and someone to quality control and post the data to the internet. In addition several temperature monitoring sites may be added to the White River.

IX. Project Status: Ongoing and on-track.

X. FY 2013 Budget Status:

A. Funds provided: \$160,523 Management."

B. Funds expended: See annual report for Project #3, FWS Program

C. Difference See annual report for Project #3, FWS Program

XI. Status of Data Submission: Not applicable.

XII. Signed: Jana Mohrman October 30, 2013
Principal Investigator Date