

I. Project Title: Colorado River Decision Support System (CRDSS)

II. Bureau of Reclamation Agreement Number(s): N/A

III. Principal Investigators:

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IV. Abstract:

The CRDSS supports better decision making with respect to the utilization of Colorado River water resources. It provides computer databases and tools to make informed and timely decisions regarding the use and operation of Colorado's water resources in the Upper Colorado River Basin. The CRDSS operates in accordance with existing compacts and state laws governing the administration of water and water rights, and will allow planning for the optimal use and development of Colorado's water resources to occur.

In relation to the Recovery Program, CRDSS is being used to evaluate the physical and legal water availability at different locations along a stream and to determine the amount of water available for instream flow appropriations. It can also provide information to help determine the impacts of endangered fish flows on Colorado's ability to develop its full compact apportionment.

CRDSS efforts contributed to decision making on the 15-Mile Reach PBO and the accounting system. This accounting system requires significant work every five years. CRDSS was also used in the development of the Yampa River Management Plan and PBO, to evaluate flow recommendations for the Gunnison River, in the Aspinall EIS process and the PBO process for the Gunnison river basin. CRDSS may be used in the PBO process for the White river basin.

The project started in 1993. Phase IIIb (extension of basin models) was completed in July

2000. A funded maintenance program has been established to provide ongoing maintenance and data updates. In addition to the regular maintenance of the CRDSS, in 2008 the CWCB began a water availability study for the Upper Colorado River basin within Colorado. Some of the funding and tasks for the study directly benefited the Recovery Program, as mentioned below.

V. Study Schedule: 1993 - 2023

VI. Relationship to RIPRAP:

Assess legal and physical availability of water and compact considerations associated with the protection of instream flow water rights for endangered fish and their critical habitat in the Little Snake River, the Yampa River above and below the Little Snake River, the White River, the Colorado River (mainstem), and the Gunnison River. Provide hydrology support to develop and evaluate flow augmentation alternatives for the Yampa and Little Snake Rivers.

RIPRAP Activity Numbers:

Yampa and Little Snake Rivers: I.A.1.d., I.B.3., I.C.3., I.D.2.

White River: I.C., I.D.

Colorado mainstem: I.A.3., I.A.4., I.B.3

Gunnison River: I.B., I.C.

VII. Accomplishment of FY 2012 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

- The database to run the CRDSS tools and planning models is online and has been fully populated with data including structure diversion records, climate data, water rights information and streamflow data through water year 2011. This can be viewed on the Internet at *cdss.state.co.us*.
- The maintenance program and the water availability study provided the following improvements to the CRDSS model that will directly benefit the Recovery Program:
 1. Alternate natural hydrologies were constructed for western Colorado using historic hydrology, paleohydrology and hydrology based on climate model predictions. These were used to make multiple runs of the models to better assess flow variability and water availability in western Colorado.

2. Irrigated acreage information for the 2010 irrigation season was obtained via satellite imagery, orthophotos, and ground investigation. The information is being processed and will be added to the CRDSS database.
3. The CRDSS tools continue to be updated and enhanced to provide improved usability and features.
4. The Colorado River Water Availability Study Phase I was completed. Phase II will commence in FY2013 and will result in additional enhancements to the models.

VIII. Recommendations:

CWCB will continue providing funding and staff for use and maintenance of the CRDSS.

IX. Project Status: On track and ongoing.

X. FY 2012 Budget Status

- A. Funds Provided: \$250,000 State of Colorado funding + in-kind services
- B. Funds Expended: \$250,000
- C. Difference: \$0
- D. Percent of the FY 2012 work completed, and projected costs to complete:
- E. Recovery Program funds spent for publication charges: \$0

XI. Status of Data Submission (Where applicable):

Not applicable, however, the CRDSS models and data can be viewed online at cdss.state.co.us.

XII. Signed: Ray Alvarado 11/20/2012
 Principal Investigator Date