

I. Project Title: Yampa Management Plan/Elkhead Reservoir Enlargement

II. Principal Investigator(s): *[Name, mail and e-mail addresses, phone and fax numbers]*

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III. Project Summary: *[Briefly describe (~100 words) project purpose and progress, and note when the project concludes. Please write this description so that it can be understood by non-technical people interested in Recovery Program activities.]*

Elkhead Reservoir Enlargement includes 5,000 acre-feet of dedicated storage water and 2,000 acre-feet of water available for lease on an as-needed basis for augmentation of Yampa River flows for the benefit of the listed fishes. Releases to be scheduled annually in accordance with the Yampa Management Plan and associated agreements.

Elkhead Reservoir Enlargement is a cooperative effort between the Colorado River Water Conservation District and the Recovery Program. The Recovery Program is responsible by agreement for 20/47ths of the project costs plus 100 percent of the permanent fish containment facilities. Funding for this purchase is being provided through USBR capital funding and Colorado Department of Natural Resources Native Species Conservation Fund to meet Colorado's obligation to the Recovery Program. Dam construction reached substantial completion in November 2006 and final completion in December 2006. Subsequent work included resolution of control and SCADA issues and warranty work.

IV. Study Schedule: *[Initial year-Final year.]*

- 1) Coordination with the Recovery Program, State of Colorado, City of Craig - ongoing
- 2) Design of Reservoir Enlargement - completed November 2004
- 3) NEPA compliance - Completed February 2005
- 4) Award construction contracts - Completed March 2005
- 5) Begin construction of dam enlargement and mitigation area M1 - March 2005
- 6) Complete necessary funding and administrative agreements - June 2005
- 7) Complete construction of Mitigation Area M1 - May 2006
- 8) Complete construction of dam enlargement – Substantial completion November 2006
Final completion February 2007
- 9) Complete wetlands plantings and mitigation areas – July 2007
- 10) Store and deliver water - ongoing beginning Spring 2007

IV. Relationship to RIPRAP: *[Task number(s) and title(s) in the RIPRAP which are correlated with this project. See <http://www.r6.fws.gov/crrip/rip8-04.htm>]*

Colorado River Action Plan: Yampa I.B.2.a.(2)(a)iii)

V. Accomplishment of FY 2007 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings: *[Describe how each task/deliverable identified in the approved FY*

2006-2007 scope of work was/was not met and summarize initial findings or final results. Include a description of any deviation from or significant changes to the FY 2006-2007 scope of work. Scopes of work may be found at <http://www.r6.fws.gov/crrip/sow.htm>.]

Construction Contract No. 1 - Mitigation Area M1 and Tree Removal

Repairs were made to the mitigation area in the upstream end of the reservoir where higher than normal spring flows in 2006 overwhelmed the sediment catch structures and caused erosion around the ends of two structures. The structures functioned well in the runoff and filling of the reservoir in 2007.

Construction Contract No. 2 Enlargement of Elkhead Creek Dam and Elkhead Reservoir

Dam construction substantially complete November 11, 2006 and reservoir began storage. Dam construction contract final completion certificate was issued in February 2007.

The reservoir filled in the Spring of 2007 and spilled April 24, 2007. Water deliveries to enhance flows in the Yampa River were made from the Recovery Program's pool beginning in August 2007 with approximately 4300 acre-feet released through the third week in September.

Challenges with several aspects of the SCADA control system, the tower bridge, the stilling basin for the outlet works and the cathodic protection system for the tower gates were resolved during and shortly after the end of FFY 2007.

Construction Contact No. 3 Wetland Mitigation Area Plantings

Planting of the 3 constructed wetland mitigation areas around the edge of the reservoir was completed in July 2007. Dry summer conditions (no rain from June through August) necessitated hand watering of the plantings on several occasions. A monitoring program has been established to assure planting viability through the two year warranty period.

Reservoir operations and deliveries for Yampa River flow enhancement

Water releases from storage in Elkhead Reservoir are administrated by the Colorado Division of Water Resources, Division 6 Engineer to assure the water reaches the intended destination. Several meetings were held with Water Division 6 staff, CWCB staff, the River District, the City of Craig and the Craig Station Power Plant each owner of a substantial portion of the original reservoir, and Recovery Program staff to determine how water stored and released from Elkhead reservoir would be tracked and accounted for.

A significant issue is the loss of reservoir releases in transit down a river segment. The Division Engineer is responsible for determining and assessing transit loss. The fish pool in Elkhead Reservoir enlargement was sized based on information provided by the Division 6 Engineer during the planning phase. The Division 6 Engineer indicated in the absence of data on transit

loss an assessment of 1 percent per mile would be made. This would be problematic to the Recovery Program as it is 87 miles from the reservoir to the Maybell gage the first measurement point for delivery of storage water considered in the Yampa Management Plan.

Operations were undertaken to help develop an understanding of transit loss from Elkhead Reservoir to the Maybell gage including dye studies conducted by the USGS, flow measurement and gage rating on a frequent basis and test releases. Dye test and test releases were made using water from the original reservoir pool belonging to the Craig Station Power Plant and the City of Craig and water from the enlargement pool belonging to the River District. Test releases were made on a constant flow basis to the City of Craig and Craig station intakes and on a slug release to the river with response monitored at the Craig and Maybell gages operated by the USGS. Data was collected by the USGS and the Division 6 Engineer. Substantial effort by the staff of the Division 6 office was made to assure water releases were not diverted by other water users. This was the first time such releases and water “sheparding” was undertaken on the Yampa River. The staff of Division 6 was able to manage water diversions and assure a reasonable delivery of the storage releases. The discussion of transit loss continues as data collected from this season’s operations is considered.

Approximately 4,300 acre-feet of the Recovery Program’s 5,000 acre foot pool were released. As the Recovery Program has not yet paid the entire portion of its capital cost for the project these releases were made outside the terms of the original agreement under an interim agreement between the Recovery Program, the State of Colorado and the River District.

VII. Recommendations: *[Describe recommendations for continuation or modification of project, recommendations for other studies or activities resulting from findings of this project, recommendations for RIPRAP changes or future Program Guidance, etc.]*

VIII. Project Status: *[If this project will continue through FY 2008 and beyond, should it be considered "on track and ongoing" or have there been significant changes in project direction, probability of project success, predicted funding needs, alignment with RIPRAP objectives and deadlines?]*

Operations will continue under the various agreements as releases for fish are required.

Mitigation area plantings will be monitored and augmented as necessary.

Engineering documentation and monitoring work will continue. Annual inspections for warranty and dam safety purposes will be conducted.

IX. FY 2007 Budget Status

- A. Funds Provided: see below
- B. Funds Expended: *[Please identify funds expended, not just those obligated.]*
- C. Difference: *[Include an explanation for any major difference.]*

Funds Provided through FFY 2007:

Summary:

Funds Requested Under CA with the Recovery Program: \$11,855,337.94
Funds requested for permanent fish screen expenses: \$ 794,507.31
Total Recovery Program Funds Requested in FFY2006: \$12,649,845.25

Funds received under the cooperative agreement: \$6,853,000.00
Funds received for the permanent fish screen expenses: \$ 250,000.00
Total Recovery Program Funds Received in FFY2006: \$7,103,000.00

Total Recovery Program Outstanding Balance through FFY2007: \$5,546,845.25

Permanent fish screen expenses: \$ 567,234.58
Cooperative agreement: \$5,002,337.94

Sources of funds provided:

Cooperative Agreement Expenses:

DNR Payments Requested for Project Expenses Under the Cooperative Agreement:

\$6,489,363.64

DNR payments received: \$6,489,363.64

DNR Outstanding Balance: \$0

USBOR Payments Requested for Project Expenses Under the Cooperative Agreement:

\$5,402,337.94

USBOR payments received: \$400,000.00

USBOR Outstanding balance through FFY 2007: \$5,002,337.94

- D. Percent of the FY 2007 work completed, and projected costs to complete: *[For projects*

funded by the Bureau of Reclamation.]

Project completed except as described below. Anticipated construction related expenses in FFY 2008:

Dam construction	\$0
Wetlands plantings	\$10,000
Mitigation area 1 repair	\$80,000
Engineering	\$152,000
Sub-total	\$242,000
10% management fee	<u>\$24,200</u>
	\$266,200

E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission (Where applicable): *[Indicate what data have been submitted to the database manager.]*

XI. Signed: Ray D. Tenney
Principal Investigator Date 11-9-07
(Just put name and date here, since you will be submitting the report electronically)

APPENDIX: *[More comprehensive/final project reports (NOT to be used in place of a complete annual report.). If distributed previously, simply reference the document or report.]*

Project photographs





