COLORADO RIVER RECOVERY PROGRAM
FY 2001 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: C-6-HYD

**I. Project Title:** Floodability Assessments and Post-Restoration Sedimentation and Erosion Monitoring/Evaluation for the Floodplain Habitat Restoration Program; Green River, UT - Colorado River, CO - Gunnison River, CO

**II. Principal Investigator:**

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**III. Project Summary:** The objectives of this work are:

1. To determine bankfull flood flows, with and without excavation;
2. To determine area of inundation as a function of flow, with and without excavation;
3. To compare historical versus existing frequency, duration, and timing of flood flows, with and without excavation;
4. To characterize pre-restoration baseline channel and site morphology, and post-restoration morphology;
5. To develop design options for enhancing floodability and to assist with construction oversight.

The Escalante State Wildlife Area bottomland site was successfully constructed in FY 2001 and preliminary civil design and estimates were completed for the Butch Craig, Grand Junction Pipe and Walter Walker bottomland sites near Grand Junction.

Floodability analyses were conducted for five Colorado River properties: Grand Junction Pipe; Tipping; Hot Spot; Audubon; and 29 & 5/8. Floodability analyses were also performed on Butch Craig site on the Gunnison River.

Because of low runoff flows, post-restoration erosion and sedimentation monitoring was not performed at any sites.

**IV. Study Schedule:**
Initial Year - FY 95
Final Year - Unknown

**V. Relationship to RIPRAP:**

General Recovery Program Support
II. Restore habitat
II.A Restore flooded bottomland habitats

II.A.2 Screen high-priority sites for potential restoration/acquisition

Green River Action Plan: Mainstem

II. Restore habitat

II.A Restore and manage flooded bottomland habitat

II.A.3 Implement levee removal strategy

II.A.3.c. Evaluation

## VI. Accomplishment of FY 2001 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1 – Reconnaissance Surveys - No reconnaissance surveys were completed by Tetra Tech (Tt) in FY 2001 because no new sites were identified.

Task 2 – Data Collection – Tipping survey was initiated in October 2000. A cross section was added to Walter Walker on the Colorado River and surveyed in October. Additional detail surveying also occurred in December 2000 and March 2001 at 29 & 5/8, Hot Spot and Tipping sites on the Colorado River; surveys for these three sites were controlled by published Mesa County Control which had an error in publication and some revision of survey was required. These detail surveys were used to calibrate the hydraulic models and tie in former surveys including the 29 & 5/8 survey, which was performed by the Bureau of Reclamation (BOR). Collected data included: topographic surveys of the properties of interest; river cross section surveys to develop a hydraulic model; and stage discharge data to calibrate the flood prediction models. Due to a less than average snow year in the Upper Colorado Basin, the 2001 runoff season did not provide good opportunities to collect stage measurements at higher flows of interest to improve flooding predictions. Therefore, Tt had to rely on the hydraulic model, which was calibrated using low flows, to extrapolate for higher flows. This method is not optimal, however the analysis is sufficiently accurate for the purpose of determining the general floodability of a given parcel. Further stage discharge data should be collected during the 2002 runoff season or during the next significant high flow. Tetra Tech will use this information to verify existing models, and to modify them if necessary.

Task 3 – Analyses –Floodability analyses were completed for 6 sites studied in 2001. Analyses were completed for the Butch Craig, Grand Junction Pipe, Audubon, Hot Spot, Tipping and 29 & 5/8 sites.

Task 4 – Configuration Design – Draft configuration design reports were submitted for Audubon. A draft Letter of Map Revision (LOMR) was submitted for the Escalante State Wildlife Area on the Gunnison River near Delta, CO and submitted to the review committee. In addition, review and recommendations for culvert configuration at 29 & 5/8 were submitted to the BOR. Furthermore, a letter report of the 29 & 5/8 design configuration was prepared for Colorado State Parks (CSP).

Task 5 – Engineering and Design –2001 Engineering design included civil design and specifications, contractor coordination and construction oversight. A reconnaissance field trip was conducted in March of 2001 where Pat Nelson

(USFWS), met with Peggy Bailey and Jason Carey (Tt) to discuss goals and concerns about 29 & 5/8 with Brad Taylor (CSP), and with Wade Brackett (BOR) to discuss Grand Junction Pipe, Butch Craig and Walter Walker sites. Draft civil design and specifications as well as quantities estimates were developed for Walter Walker and Grand Junction Pipe on the Colorado River, and Butch Craig on the Gunnison River. These sites are expected to be constructed per final design in mid FY 2002. In January 2001, Tt assisted in the construction stake out for modifications at the Escalante site near Delta. The design for this site was reconfigured to promote flow through conditions in the bottomland areas. BOR crews from Provo, Utah completed construction in mid FY 2001. Peggy Bailey (Tt) made two site visits for construction progress.

Task 6 – Monitoring/evaluation – Tt surveyed As-Built conditions for the Escalante site and completed a field report memo. Post-restoration sedimentation and erosion monitoring was not conducted along the Green River. Further post-restoration activities were suspended due to the low flow conditions in 2001. It was anticipated that the below average runoff would limit sedimentation and erosion processes. The USFWS determined that monitoring efforts should be delayed until after sufficient flow conditions occur.

Other general service tasks completed in FY 2001 include extending assessment of the Smoky Rasmussen site.

## VII. Recommendations:

The monitoring of water surfaces, erosion and sedimentation at the bottomland and river cross sections should continue in 2002 and beyond. All sites that receive significant flows in spring of 2002 should be monitored during peak flow. Monitoring the reaction of the river and bottomlands to various constructed configurations will provide valuable data that can be referenced in refining engineering design for future bottomlands restoration. All constructed sites that receive design flows in spring of 2002 should also be evaluated for effectiveness and design modifications. Other potential sites should be surveyed, analyzed and assessed similar to those bottomlands that have been previously evaluated.

## VIII. Project Status:

The project should be considered on-track and ongoing. Funding needs may be increased for increased civil design, review of design and assessment of additional sites as they are identified.

## IX. FY 01 Budget:

A. Funds Provided: $ 139,690.36 (Note: 32,316.69 Rollover from FY 2000)
B. Funds Expended: $ 113,801.49

C. Difference: $ 24,351.07

D. Percent of FY01 work completed, and projected costs to complete: 83% - $24,351.07 (Note: This Contract is based on the Calendar Year and this FY 2001 report does not reflect Contract status.)

E. Recovery Program funds spent for publication charges: $0

**X. Status of Data Submission:** Not applicable

**XI. Signed:** William T. Fullerton, P.E. — Principal Investigator; 12-07-01 — Date