

**COLORADO RIVER RECOVERY PROGRAM  
FY 2005 ANNUAL REPORT**

**Project No: C-6 rz entr.**

I. Project Title: Evaluation of larval sucker drift into floodplain wetlands

II. Principal Investigator(s):

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III. Project Summary:

Floodplain wetlands are presumed to be important rearing habitat for the endangered razorback sucker (Wydoski and Wick 1998; Muth et al. 1998; Lentsch et al. 1996). Reproduction by razorback suckers occurs in the spring during peak flows of the hydrograph when highly productive floodplain habitats are accessible (Muth et al. 1998). This seasonal timing of razorback sucker reproduction indicates possible adaptation for utilizing floodplain habitats (Muth et al. 1998).

Based on the assumption that floodplain wetlands provide critical rearing habitat for razorback suckers, the Recovery Program initiated an extensive floodplain habitat restoration program (Levee Removal). The goal of the Levee Removal Program was to restore natural floodplain wetland habitats and functions that support recovery of endangered fish (specifically the razorback sucker) (Lentsch et al. 1996). To accomplish this goal, levees at selected wetlands were lowered to increase the frequency of the riverine-floodplain connection to pre Flaming Gorge Dam levels.

Valdez (2003) developed a larval razorback sucker drift model to be used as a predictive tool for the number of floodplain acres and number of razorback larvae necessary to reach the recovery goals. An important element of this model demonstrated how quickly razorback larvae “fall” out of the river as part of the planktonic drift. If this prediction is correct most of the larvae produced at Razorback Bar would not reach the major floodplain sites at Ouray. This has major management implications for the relative importance of different floodplain sites along the Green River and the importance of other potential spawning sites. Optimization of larval entrainment in the floodplain will be crucial for ensuring survival of larval razorback suckers, and ultimately recovery. If the model is correct, sites like the Thunder Ranch and Stewart Lake wetlands become the most important sites on the middle Green River.

The goal of this study is to evaluate larval sucker entrainment into the Thunder Ranch and Stewart Lake floodplain wetlands and use the data to revise management for middle Green River floodpains based on potential larval razorback sucker entrainment. A secondary goal was to evaluate if the beads are acceptable surrogates for drifting larvae.

IV. Study Schedule: Initial year - FY - 2004 Final year - FY 2007

V. Relationship to RIPRAP:

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

- II. Restore Habitat (Habitat development and maintenance)
- II.A. Restore flooded bottomland habitats.

GREEN RIVER ACTION PLAN: MAINSTEM

- II. Restore Habitat (Habitat development and maintenance)
- II.A. Restore flooded bottomland habitats.
  - II.A.3. Implement levee removal strategy at high priority sites.
  - II.A.3.d. Evaluation.

VI. Accomplishment of FY 2003 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1: Field Data Collection – Bead release and drift netting

Approximately 1.5 million biodegradable gelatinous neutrally buoyant beads (beads) and 100,000 marked hatchery spawned razorback sucker larvae were released simultaneously in to the river at three different flows (RM 311) in May 2005. Drift net stations were set up at 1 mile, Thunder Ranch, Stewart Lake, The Stirrup, and Leota L7. Samples were collected for over 36 hours on each release.

Preliminary results include:

- Drifting beads were caught in relatively large numbers at all sites including Leota sixty miles down stream.
- Beads released on river right at Razorback Bar remained on river right for over 10 miles bypassing Thunder Ranch.
- Beads released on river left at Escalante Bar remained on river left for over ten miles.
- Stewart Lake appears to be the best site for entraining razorback Larvae.

## Task 2: Drift Net Sample Processing

Drift net samples were examined for beads following the day of collection. Drift samples are now being examined closer to remove larval suckers and preserve them in alcohol for later analysis and to check for marks. Approximately sixty percent of the 400 drift net samples have been processed to remove larval suckers and enumerate beads.

## Task 3: Data Management

Site and collection data have been entered into a database. The remaining data will be entered upon completion of analysis of larval fish samples.

## Task 4: Report Preparation

Annual RIP Report (Dec 1, 2004) complete

Final report: Draft Final Report (March 2007)

## VII. Recommendations:

- Release larger batches of larvae (increase power of analysis)
- Sample wetlands with drift nets and light traps to assess relative entrainment
- Continue to evaluate the most effective breach connections and floodplain locations for entraining razorback larvae during different connecting flows and use this data to refine floodplain management
- Evaluate at different flows to model the drifting larvae throughout the spring hydrograph
- Evaluate razorback survival in the floodplains

## VIII. Project Status:

On track and ongoing

## IX. FY 2003 Budget Status

- |    |   |          |
|----|---|----------|
| A. | Funds Provided:                                       | \$43,900 |
| B. | Funds Expended:                                       | \$43,900 |
| C. | Difference:   | \$0      |
| D. | Recovery Program funds spent for publication charges: | \$ 0     |

## X. Status of Data Submission: Data will be submitted at the completion of the study.

Data will be submitted at the conclusion of the project (December 2004)

XI. Signed: Kevin Christopheson 12/1/2005  
Principal Investigator Date