

**COLORADO RIVER RECOVERY PROGRAM  
FY 2006 ANNUAL PROJECT REPORT**

**RECOVERY PROGRAM  
PROJECT NUMBER: 145**

I. Project Title: **Research Framework for the Upper Colorado River Basin.**

II. Principal Investigator(s): Kevin R. Bestgen  
Larval Fish Laboratory, Colorado State University  
Department of Fish, Wildlife, and Conservation Biology  
Fort Collins, Colorado 80523  
(970) 491-1848/fax: (970) 491-5091  
E-mail: [kbestgen@cnr.colostate.edu](mailto:kbestgen@cnr.colostate.edu)

Richard A. Valdez  
SWCA, Inc.  
172 West 1275 South  
Logan, UT 84321  
(435) 752-9606/fax: (435) 752-1004  
E-mail: [valdezra@aol.com](mailto:valdezra@aol.com)

III. Project Summary: The overriding hypothesis of this work is that population dynamics of the four endangered fish are determined by intrinsic and extrinsic factors that affect reproduction, survival, and recruitment of juveniles to adults from year to year. These factors include environmental stressors that may limit population size and may be controlled through management actions; or these factors may include climate (such as, periods of drought) or other natural factors. The recovery program implements management actions through the RIPRAP that are designed and intended to remove or minimize effects of human-induced environmental stressors that threaten the endangered fish species. This project will determine if management actions are addressing these threats, as well as evaluate the effectiveness of these actions for each of the four endangered fish species.

IV. Study Schedule: This study was initiated in Phases. This schedule reflects a revision that was discussed at the Biology Committee (BC) meeting in early October 2006 and is found in a revised scope of work that was recently sent back to the BC.

**PHASE I**

**Task I-1. Conceptual Life History Models.**

October 30, 2006

**Task I-2. Evaluation of RIPRAP Management Actions.**

November 30, 2006

Task I-3. Report Preparation.

Draft report to Recovery Program Office for coordinator review November 30, 2006; Draft Report to Biology Committee for review January 1, 2007; Final to Biology Committee May 1, 2007.

Phase II schedule is below.

Task II-1. Available Data Sets.

February 28, 2007

Task II-2. Quantitative Analysis of Prior and Recent Data to Identify Associations.

April 30, 2007

Task II-3. Report Preparation.

Phase II began October 5, 2006; Draft report to Recovery Program Office for coordinator review May 31, 2007; Draft Report to Biology Committee for review June 30, 2007; Final to Biology Committee September 30, 2007.

- V. Relationship to RIPRAP: This study relates to most major RIPRAP elements (below) because it was designed to integrate research and management study results and RIPRAP tasks.
- I. Provide And Protect Instream Flows (Habitat Management)
  - II. Restore Habitat (Habitat Development And Maintenance)
  - III. Reduce Negative Impacts Of Nonnative Fishes And Sportfish Management Activities (Nonnative And Sportfish Management)
  - IV. Manage Genetic Integrity And Augment Or Restore Populations (Stocking Endangered Fishes)
- VI. Accomplishment of FY 2006 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings: The Biology Committee was updated on project progress in early October 2006. Principal investigators and Ann Widmer (SWCA) presented the conceptual model results which are completed except for internal review. Ann Widmer discussed and demonstrated the Access database. To date, over 125 citations and reports relating to Colorado pikeminnow *Ptychocheilus lucius* have been input. A demonstration query was made of the database that showed the BC how information could be extracted to evaluate how Recovery Program studies were addressing threats to early life stages of Colorado pikeminnow and management actions associated with minimizing those threats. The PI's, Dr. Tom Czapla, and Ms. Widmer are now reviewing the final list of reports for inclusion in the database. The final remaining task is to link the conceptual models,

database capabilities, and the RIPRAP.

VII. Recommendations: The BC has recommended continuing with Phase II of the project pending receipt of the newly revised and submitted scope of work. A main initial emphasis of Phase II will be analysis of existing data to understand reasons for recent declines in some populations of Colorado pikeminnow. This will be accomplished by analysis of historical Green River pikeminnow data that describes abundance of larvae, young-of-year and juveniles, and adults, and relating that to seasonal and annual river flows and abundance of nonnative fishes. We may also investigate relationships of native and nonnative fish abundance to flows, particularly related to the recent drought. Rick Anderson (Colorado Division of Wildlife) has accumulated a large data set that may be useful in that regard, and we are making requests to acquire it.

VIII. Project Status: On track and ongoing.

IX. FY 2006 Budget Status

- A. Funds Provided: \$46,187
- B. Funds Expended: \$43,600
- C. Difference: \$2587, LFL and SWCA retain minor funding to allow for completion of Phase I work and the report.
- D. Percent of the FY 2006 work completed, and projected costs to complete: 90% completed, funds are sufficient to complete Phase I work.
- E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission (Where applicable): NA

XI. Signed: Kevin Bestgen and Rich Valdez 7 November 2006  
Principal Investigator                      Date