

COLORADO RIVER RECOVERY PROGRAM  
FY 2013 ANNUAL PROJECT REPORT

RECOVERY PROGRAM  
PROJECT NUMBER: 161

I. Project Title: Population Dynamics Modeling of Introduced Smallmouth Bass, Upper Colorado River Basin

II. Bureau of Reclamation Agreement Number(s): 9-FG-81-0143 R09AC40885

Project/Grant Period: Start date (Mo/Day/Yr): 4 June 2009  
End date: (Mo/Day/Yr): 30 September 2014  
Reporting period end date: 30 September 2013  
Is this the final report? Yes \_\_\_\_\_ No X

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IV. Abstract: Non-native and piscivorous smallmouth bass *Micropterus dolomieu* are established and common in the lower Yampa River, the upper and middle Green River basins, and the upper Colorado River. In response to the predatory threat posed by non-native fishes such as smallmouth bass, the Upper Colorado River Endangered Fish Recovery Program initiated efforts to control such species via mechanical removal in affected stream reaches. The aim of this study is to expand the scope of recent population dynamics models using data collected in the system, the comprehensive non-native fish removal database, and our own unpublished information. Our goal is to develop abundance estimates and population trend data for reaches of interest and a comprehensive age- or size-structured model to understand factors that affect smallmouth bass population dynamics in the Upper Colorado River Basin. Results of this study will assist with formulating comprehensive non-native fish control strategies in the Upper Colorado River Basin.

V. Study Schedule:

Initial Year 2010

Final year 2014 (advanced due to later than expected start date and two additions of funds to incorporate additional data)

VI. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake Rivers

III.A.1. Implement Yampa Basin aquatic wildlife management plan to develop nonnative fish control programs in reaches of the Yampa River occupied by endangered fishes. Each control activity will be evaluated for effectiveness and then continued as needed.

Green River Action Plan: Mainstem

III. Reduce negative impacts of nonnative fishes and sportfish management activities

(Nonnative and sportfish management)

III.A.2.c Evaluate the effectiveness (e.g., nonnative and native fish response) and develop and implement an integrated, viable active control program.

VII. Accomplishment of FY 2013 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

The Recovery Program decided to fund approximately one additional year of effort in the project in order to incorporate smallmouth bass removal data collected in 2011; we are also proceeding with some portion of the 2012 data. Inclusion of that data will provide a more up-to-date understanding of progress toward smallmouth bass control in the basin. Including this additional data was thought to be beneficial given the relatively high flows that occurred in those years. High flows may have reduced bass reproductive success, as may have the increased bass removal effort in those years. The 2009 and 2010 data was acquired in spring 2011 and was incorporated into the database described below. The 2011 data was added later, and 2012 data was acquired in late summer 2013.

With additional data, new abundance estimates (and revisions of earlier estimates) for some of those years have been created. Those results will be presented at the nonnative fish workshop in early December 2013; interim findings were also presented at the 2010, 2011, and 2012 workshops. Updated abundance estimates indicate progress toward smallmouth bass control in some reaches through 2012. Preliminary results of those estimates were recently discussed with Recovery Program staff. The draft section of the final report detailing those estimates has been prepared and is under internal review.

Another activity conducted in 2011 and 2012, and finalized in April 2013, was analysis of smallmouth bass recapture data that described escapement of that species from Elkhead Reservoir; this was another use of the additional funding received in 2011. Results of those estimates were recently discussed with Recovery Program staff and the Biology Committee in the form of a draft report. Those results were presented at the

non-native fish workshop in early December 2012; findings were also presented at the 2010 and 2011 workshops. There are no plans to present this at the 2013 workshop because it is a final product.

Additional progress was also made on creating a population dynamics model that better describes changes in abundance of smallmouth bass in the Yampa River. We hope to have a final draft of that report available for internal review by the end of 2013. Those results will also be presented at the non-native fish workshop in early December 2013.

Our Cooperative Agreement with the Bureau of Reclamation expired on 30 September 2013, and this project was part of that. We have been discussing options with the Bureau to have them de-obligate this funding and then re-obligate it so we can finish this important work.

- VIII. Recommendations: Continue with project implementation, with a revised start and end date for the schedule.
- IX. Project Status: Delayed due to project extensions and late start.
- X. FY 2013 Budget Status
  - A. Funds Provided: \$254,966
  - B. Funds Expended: \$216,504
  - C. Difference: \$38,492
  - D. Percent of the FY 2013 work completed, and projected costs to complete: 75% complete
  - E. Recovery Program funds spent for publication charges: \$0
- XI. Status of Data Submission (Where applicable): NA
- XII. Signed: 

Kevin Bestgen	18 November 2013
Principal Investigator	Date

  
(Just put name and date here, since you will be submitting the report electronically)

APPENDIX: *E.g., 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.*