

COLORADO RIVER RECOVERY PROGRAM  
FY 2009 ANNUAL PROJECT REPORT

RECOVERY PROGRAM  
PROJECT NUMBER: 161

- I. Project Title: Population dynamics modeling of introduced smallmouth bass, Upper Colorado River Basin.
- II. Principal Investigator(s):  
Lead Agencies: Larval Fish Laboratory, CSU

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- III. Project Summary: The non-native piscivores smallmouth bass *Micropterus dolomieu* and northern pike *Esox lucius* 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 Recovery Implementation 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dynamics models using data collected in the system, the comprehensive non-native fish removal database, and our own unpublished information.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 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.



Dr. Breton has a deep understanding of quantitative estimation and database management through his previous work with marine birds, has demonstrated ability with population modeling, is a good writer, and is a quick study and very excited to engage in this project. He should be able to get up to speed quickly. He also knows several other quantitative analysis folks here, including co-principal investigator Dr. Gary White, and those interactions will favor the success of the project. His lack of experience with fish (most candidates had little or no fish or aquatic experience even though we advertised for that) should not be a concern as Dana, John, and myself will work closely with him on those issues as needed.

Dr. Breton is in residence and he has begun familiarizing himself with the database. The hiring schedule will not allow for much in the way of a substantive contribution to the non-native fish workshop in early December, but we intend to be there and introduce Dr. Breton to the group. That will be a good opportunity to begin to interact with biologists, and we can discuss in some detail, our proposed approach to the project. This schedule will also allow for incorporation of data on effects of consecutive years of relatively high and cool flows on smallmouth bass reproduction and survival, regimes that we have had few of in recent years. Combined with data already collected during years with lower and warmer flows, this more recent information should give us a much better view of the effects of varying environmental influences on smallmouth bass ecology in the system.

VII. Recommendations: Continue with project implementation, with a slightly revised start date for the schedule.

VIII. Project Status: On track and within budget.

IX. FY 2009 Budget Status

A. Funds Provided: \$32,424

B. Funds Expended: 0

C. Difference: \$32,424, post-doc just hired.

D. Percent of the FY 2009 work completed, and projected costs to complete: 0%, no work was completed other than to hire the post-doc so none of the budget was expended.

E. Recovery Program funds spent for publication charges: None

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

XI. Signed: Kevin R. Bestgen  
Reporting Principal Investigator

11 Nov. 2009  
Date