

I. Project Title:
Native fish response to nonnative fish control in the middle Green River, Utah.

II. Principal Investigator:

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III. Project Summary:

Control actions targeting nonnative gamefish species are being evaluated across the upper Colorado River Basin to determine the level of reduction necessary to minimize the threat to the recovery of the endangered Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), humpback chub (*Gila cypha*), and bonytail (*Gila elegans*). There are two key aspects to evaluating nonnative fish control: (1) can the abundance of target species be reduced to an acceptable level (i.e., for the persistence of native fishes) by the approaches employed, and (2) is there a measurable positive response by populations of endangered fish and other native species?

Given the preliminary stage of nonnative fish control evaluations and the confinement to select river reaches, the first observed positive response will likely be evident in early life-stages of the native fish community (Bestgen et al. 2007a), such as bluehead sucker (*Catostomus discobolus*), flannelmouth sucker (*Catostomus latipinnis*), roundtail chub (*Gila robusta*), and speckled dace (*Rhinichthys osculus*). An adult response to nonnative removal may not be detectable initially for a number of reasons, one of which is the large home range of adults (UDWR 2006). Likewise, a positive response by adult endangered species may be more difficult to measure statistically without a longer observational period due to generation times of endangered fish populations (e.g., Bestgen et al. 2007b). Data necessary for these analyses will be generated by current and future young-of-year (YOY) sampling and population estimation projects for endangered species in conjunction with nonnative fish removal efforts.

This project will focus on determining the response of early life-stages of native and small-bodied fish to removal of nonnative predators, primarily smallmouth

bass (*Micropterus dolomieu*) and northern pike (*Esox lucius*), which are being removed from the Green River between Island Park and the confluence with the Duchesne River. Removal efforts for northern pike began in 2001 and have kept numbers of northern pike at low levels in this reach. This work was originally contained within project #109, but was subsumed under project #123b in 2007. Smallmouth bass removal began in 2004 with one marking pass and three removal passes. This effort (project #123b) continued through 2006, but was increased to include eight removal passes in 2007 and eleven removal passes in 2008, 2009 and 2010. Native and small-bodied fish will serve as indicators of the response that would be experienced by endangered fish species occupying the same habitats.

IV. Study Schedule: 2005 – 2010

V. Relationship to RIPRAP:

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.

VI. Accomplishment of FY 2010 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Objective 1: Estimate response of small-bodied native fish to removal of northern pike and smallmouth bass in the middle Green River.

Beginning this year, the field work for this project was subsumed under the YOY Colorado pikeminnow monitoring project. You can see specific information relating to the field studies by referring to annual report for project #138.

Task 1. Data entry and analysis.

Data entry and analysis are complete and specific information relating to the field studies can be seen by referring to the annual report for project #138.

Task 2. Annual report.

Annual report November 2010.

VII. Recommendations:

- Continue this research (under project #138) and others intended to determine whether we can affect numbers of YOY in the middle Green River or whether environmental variables play a larger role.

VIII. Project Status: on track and ongoing

IX. FY 2010 Budget Status

- A. Funds Provided: \$11,180
- B. Funds Expended: \$11,180
- C. Difference: \$0
- D. Percent of the FY 2010 work completed, and projected costs to complete: 100%

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

X. Status of Data Submission: Data will be submitted to database manager January 2010.

XI. Signed: Leisa Monroe November 10, 2010
Principal Investigator Date

XII. References

Carpenter, J. and G.A. Mueller. 2008. Small nonnative fishes as predators of larval razorback suckers. The Southwestern Naturalist 53(2): 236-242.