

I. Project Title: **Monitoring multi-life stages of the fish community in the lower Gunnison and upper Colorado rivers, with emphasis on Colorado pikeminnow and razorback sucker populations, in response to reoperation of the Aspinall Unit and implementation of the Selenium Management Plan.**

II. Bureau of Reclamation Agreement Number(s): R11PG40022

Project/Grant Period: Start date (Mo/Day/Yr): 7/20/2011
End date: (Mo/Day/Yr): 12/31/2015
Reporting period end date: 9/30/2013
Is this the final report? Yes _____ No X

III. Principal Investigator(s): Project Biologist (currently vacant)
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IV. Abstract:
The Programmatic Biological Opinion (PBO) for Gunnison River Basin water depletions (USFWS 2009) stipulates that endangered fishes and the sympatric fish community be monitored to determine their status before and after the Selenium Management Plan (SMP) is implemented and following reoperation of the Aspinall Unit reservoirs. The PBO specifies multi-life stage monitoring and density estimates of Colorado pikeminnow and razorback sucker in the Gunnison and Colorado rivers. The entire fish assemblage is monitored using electrofishing catch-per-effort (CPE) to track trends in species relative abundance both in the Gunnison River and the 18-mile reach of the Colorado River downstream of the confluence. Larval seining is conducted in both rivers, providing an index of reproductive success using CPE (mean number/sample) of endangered fish larvae. Due to funding limitations, only the razorback sucker spawning period (Mid-May to early-July) is sampled. For young-of-the-year and small-bodied fish monitoring, seining is conducted during fall (late September-early October) using ISMP methodology (see McAda 1994) in both the Gunnison (Delta, CO to Redlands Diversion) and Colorado (Gunnison confluence to Westwater, UT) rivers. Concurrent with fish community

monitoring in the Gunnison River, tissue samples are collected to determine selenium concentrations in fish before and after implementation of the SMP. Muscle plugs are collected from adult Colorado pikeminnow and razorback sucker. Field data and specimen collection is on track to be completed in 2014.

V. Study Schedule: 2011-2017.

Field work: 2011-2014

Large-bodied fishes report: 2015

Larval fishes report: 2017

VI. Relationship to RIPRAP:

Gunnison River Action Plan: Gunnison River Mainstem,

V. Monitor populations and habitat and conduct research to support recovery actions.

V.A. Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.

Colorado River Action Plan: Colorado River Mainstem

V. Monitor populations and habitat and conduct research to support recovery actions.

V.A. Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.

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

Tasks Accomplished

- Tasks 1-2. Electrofish fish community (August and October)
- Tasks 3-4. Sample fish larvae (early to Mid-May to July)
- Tasks 5-6. Seine sampling of backwaters (September-October)
- Task 9. Analyze larval samples (Larval Fish Lab)
- Task 10. Analyze data
- Task 11. Write annual report

Tasks Not Accomplished

- Task 12. Prepare final contaminants report (Barb Osmundson) – This work is not being funded by the Bureau of Reclamation through the Recovery Program

Deliverables

Annual report

Accomplishments and Initial Findings

Tasks 1-6 were completed according to planned field schedules. Tissue samples from Colorado pikeminnow and razorback sucker were collected both in the mainstem Gunnison River, as well as in the Redlands fish Ladder during 2013, but due to a lack of further funding, these samples have not yet been submitted to the lab. Samples of larvae and YOY and small-bodied fish from seine surveys have been preserved. Identification of these samples was begun by the CSU-Larval Fish Lab in 2013. Species, length, and weight data collected during the August and October 2011 and 2012 Gunnison River sampling have been inputted but not analyzed. Data from the August and October 2013 Gunnison River sampling are currently being entered. The September 2011–2013 Colorado River electrofishing sampling data have been inputted and comparisons with 1994 and 1995 CPE data have been made (Fig. 1).

When electrofishing catch rates from 2011-2013 were compared with catch rates from 1994-1995, it appeared that CPE for bluehead sucker, flannelmouth sucker, and roundtail chub all showed declining trends compared to 1994 values. However, given the overlap in 95% confidence intervals, it appears that bluehead sucker were the only native species analyzed for which this declining trend was statistically significant. Among the three nonnative species analyzed, there appeared to be a slightly increasing trend in CPE for all three between 1995 and 2013. However, none these trends was statistically significant.

Shortcomings

As per recent discussions among the Biology Committee, it has been decided that developing abundance estimates of razorback sucker in Colorado River is a bigger task than was first anticipated. To analyze this data completely and correctly will likely take a separately funded effort, similar to previous efforts done along these same lines by the CSU Larval Fish Laboratory (LFL). Discussions between CRFP Grand Junction and the LFL have begun to determine what this effort will entail and when it will commence.

The preparation of a final contaminants report was being funded not with Recovery Program funds, but separately through Contaminants funding obtained outside the Program by Barb Osmundson. Unfortunately, this funding has been cancelled. Ms. Osmundson has committed to finishing the report and sharing the findings with the Recovery Program. However, the timeline for her to finish the report is presently uncertain.

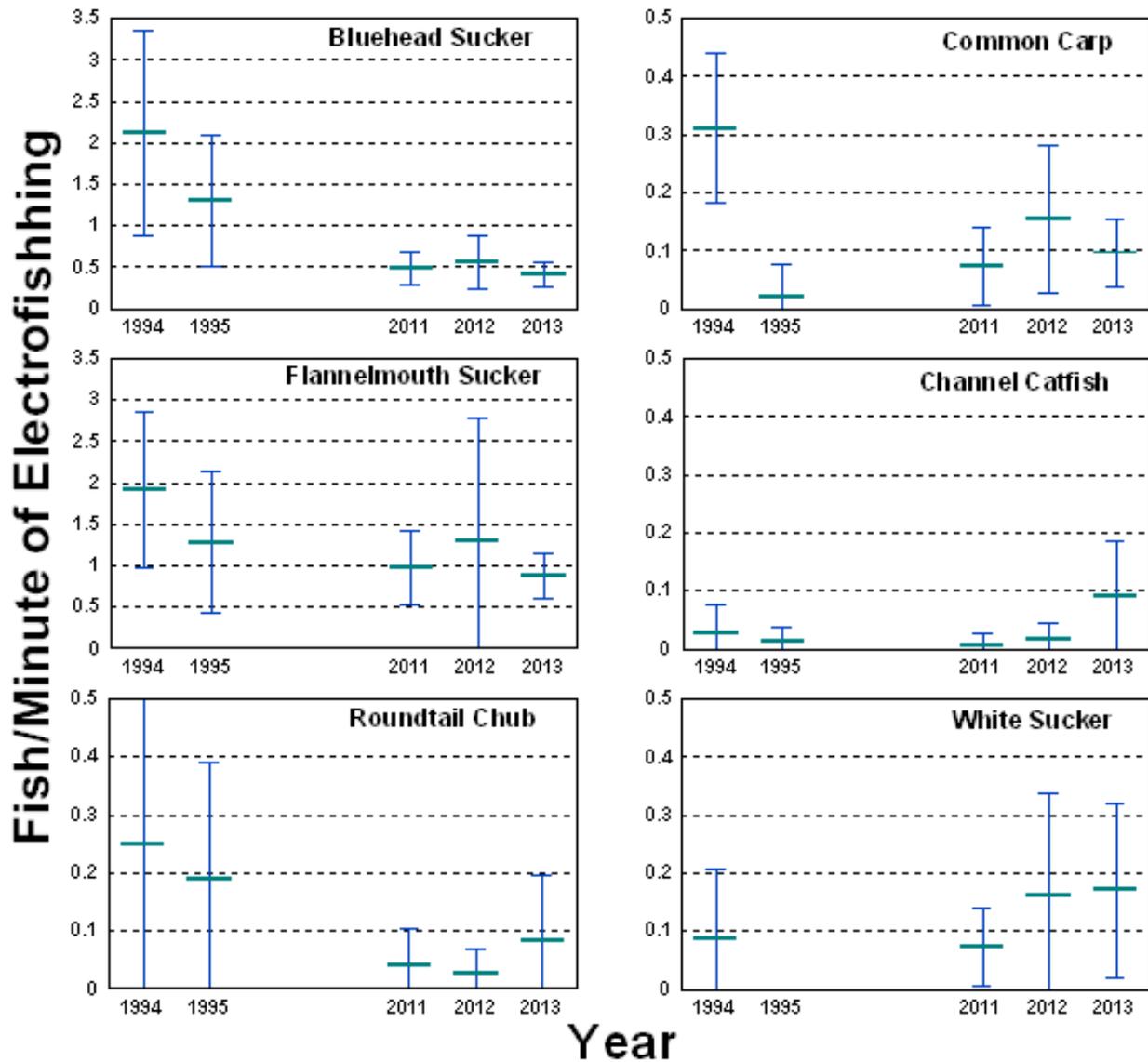


Figure 1. Electrofishing catch rates (mean number of fish caught per minute of electrofishing) of six species in the 18-mile reach of the Colorado River downstream from the Gunnison River inflow. Sampling gear, protocol, and study reaches were held constant from the earlier (1994–1995) to the recent (2011–2013) period. 95% confidence intervals are shown about the mean.

VIII. Additional noteworthy observations: None

IX. Recommendations:

- Continue analyzing data and prepare for 2014 field season. For future monitoring, electrofishing catch-per-effort will be continued as the index for trends in endangered

fish adult abundance as too few were captured in the Gunnison River to allow a planned mark-recapture study to be conducted.

- Additionally, the dearth of adult Colorado pikeminnow collections in the Gunnison River from 2011–2013 does not seem to justify the expansion of the larval sampling program (i.e., extra funding and manpower) to try to document the presence/absence of larvae of this rare species.
- However, consideration should be given to expanding razorback sucker larval sampling into the lower reach (Moab to Green River confluence) based on the 2013 collection of juvenile razorback sucker during the 2013 Colorado pikeminnow population estimate survey by the Grand Junction CRFP office.

X. Project Status:

Field efforts are all on schedule; data analysis is progressing, razorback sucker abundance estimation for Colorado River is behind schedule but will be done in the near future, as manpower and funding become available for this effort, as per recent Biology Committee discussions.

XI. FY 2013 Budget Status

- A. Funds Provided: \$83,887
- B. Funds Expended: \$83,887
- C. Difference: \$0
- D. Percent of the FY 2013 work completed, and projected costs to complete: 100%
- E. Recovery Program funds spent for publication charges: \$0

XII. Status of Data Submission: Capture data from electrofishing surveys will be submitted to the database manager as inputting and error-checking is completed. Data from 2011 and 2012 has been submitted.

XIII. Signed: Dale Ryden 11/7/2013
Principal Investigator Date

APPENDIX: Not Applicable