

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): R15PG00083

Project/Grant Period: Start date (Mo/Day/Yr): 10/1/2014
End date: (Mo/Day/Yr): 9/30/2019
Reporting period end date: 9/30/2016
Is this the final report? Yes _____ No X

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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 Gunnison River confluence. Larval seining conducted in both rivers provides an index of reproductive success using CPE (mean number per sample) of endangered fish larvae. 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 the confluence) and Colorado (Gunnison confluence to CO/UT stateline) 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 bonytail, Colorado pikeminnow and razorback sucker.

- V. Study Schedule: 2011-2017
Field Work: 2011- ongoing
Juvenile and adult fishes report: 2016
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 2016 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Tasks Accomplished

- Tasks 1-2. Electrofishing community sampling (August and October)
Tasks 3-4. Sample fish larvae (early May to August)
Tasks 5-6. Seine sampling of backwaters (September)
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 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.

Two electrofishing trips were completed on the Gunnison River from Delta, Colorado downstream to river mile (RM) 3.9 (approximately 1 mile upstream of the Redlands diversion dam). Dates for the Gunnison River electrofishing trips were August 8th-21th and October 3rd-7th. Captures from the August sampling trip include eight razorback suckers. Captures from the October sampling trip include 19 razorback suckers. No Colorado pikeminnow were captured during these 2016 sampling trips.

Electrofishing sampling was completed on the Colorado River portion of the study area on September 19th and 20th. One bonytail, one Colorado pikeminnow and one razorback

sucker were captured during electrofishing sampling in the Colorado River portion of the study area. All three endangered fish captured in 2016 contained a PIT tag when captured. The 2011-2016 Colorado River electrofishing sampling data have been entered and comparisons with the 1994 and 1995 CPE data are presented in Figure 1.

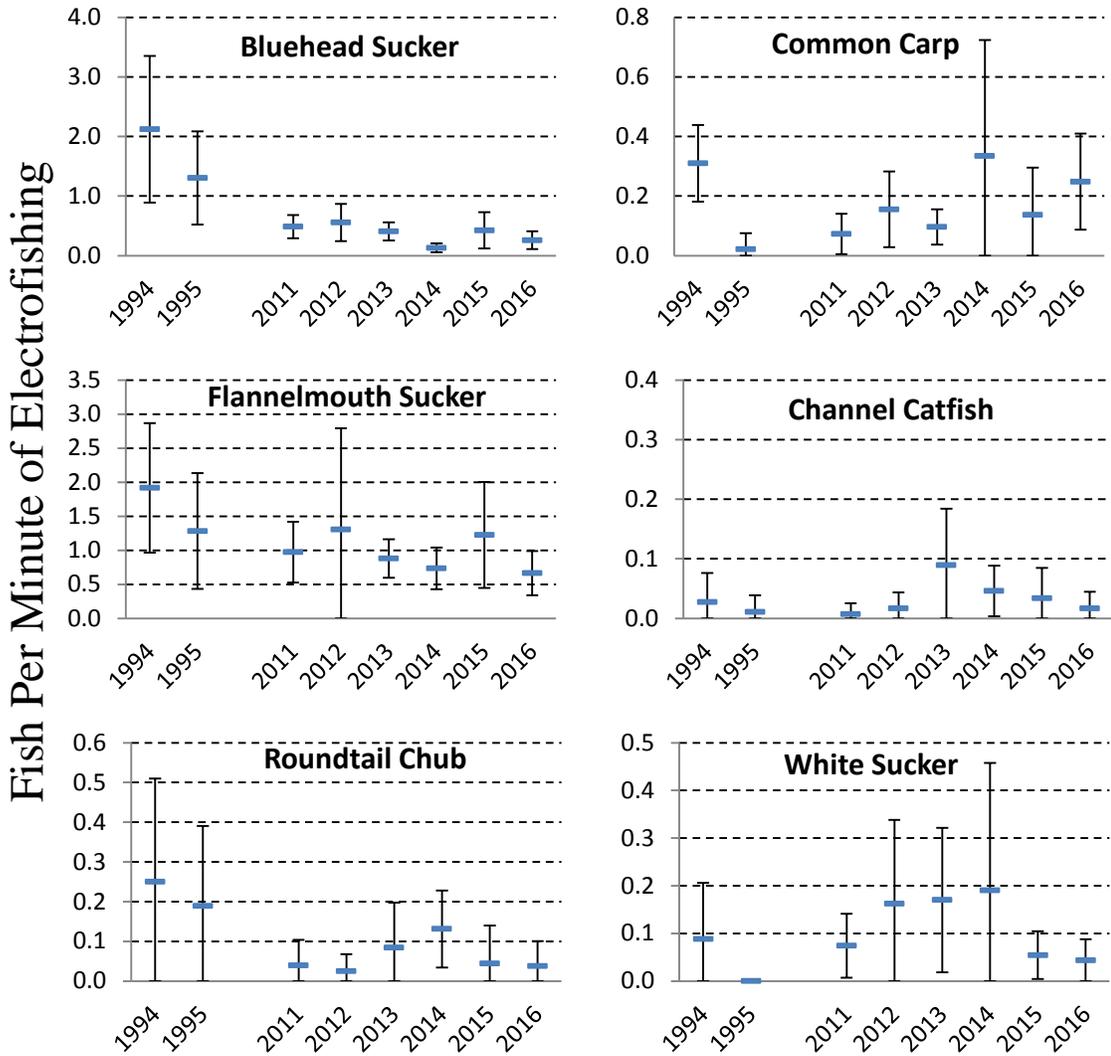


Figure 1. Electrofishing catch rates (mean number of fish caught per minute of electrofishing) of the six most commonly collected species. Errors bars represent 95% confidence intervals.

Catch rate data from electrofishing surveys of the 18-mile reach of the Colorado River downstream of the Colorado River/Gunnison River confluence are presented for the six most common collected species. Study reaches were held constant from the early sampling period (1994-1995). No differences exist in catch rates of common carp, flannelmouth sucker, channel catfish, roundtail chub or white sucker between the recent sampling period (2011-2016) relative to the catch rate during the early sampling period (1994-1995). A significant decrease in the catch rate of bluehead sucker is present between data collected in 2016 relative to data collected during 1994 and 1995. Mean catch rates include all size classes of each species captured by electrofishing.

Larval sampling began May 9th on the Gunnison River and May 2nd on the Colorado River. Sampling continued until August 3rd on the Gunnison River and August 1st on the Colorado River. Larval samples collected in 2016 were transferred to the CSU-Larval Fish Lab in October, 2016. Seine sampling for young-of-year fishes was completed from September 13th-15th on the Gunnison River and September 16th-20th on the Colorado River. Fishes were either identified in the field or preserved to be identified by the CSU Larval Fish Lab. No endangered fishes were captured during seine sampling in either the Colorado or Gunnison Rivers in 2016.

Tissue samples from bonytail, Colorado pikeminnow, razorback sucker, and razorback sucker/flannelmouth sucker hybrids have been collected in the Gunnison River during previous years. A total of 27 tissue samples were collected from razorback suckers on the Gunnison River in 2016. No other endangered fish species were captured in 2016 on the Gunnison River. Samples from previous years have been analyzed, but a report has not been completed. See first paragraph under the heading “shortcomings” for an explanation.

While no razorback sucker population estimate has yet been done specific to the 18-Mile Reach of the Colorado River, preliminary population estimates were generated for razorback sucker in the Colorado River as a whole (from Palisade, CO downstream to its confluence with the Green River), for adult fish > 400 mm TL. Data used to generate razorback sucker population estimates was obtained during the Colorado pikeminnow population estimate studies done in 2005 and 2008-2010. The results are as follows:

<u>Year</u>	<u>Point Estimate</u>	<u>95% Confidence Intervals</u>
2005	656	436-877
2008	2,035	1,333-2,738
2009	1,680	1,070-2,291
2010	1,637	1,179-2,095

Data collected during the 2013 to 2015 Colorado pikeminnow population estimate sampling period is sufficient to calculate a riverwide razorback sucker population estimate, but the estimates have not been completed at this time.

Shortcomings

The preparation of the final contaminants report by Barb Osmundson will be funded outside the Recovery Program. Unfortunately, the funding Ms. Osmundson had been relying on to complete this task 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.

- VIII. Additional noteworthy observations: Smallmouth bass were recently discovered in Ridgeway Reservoir on the Uncompahgre River, upstream of its confluence with the Gunnison River. In 2016, no smallmouth bass were collected or observed during electrofishing sampling on the Gunnison River upstream of Redlands Dam.

