

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: 9/30/2018
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: 2011-2020
Field Work: 2011- ongoing
Juvenile and adult fishes report: 2018
Larval Fishes report: 2018

- 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 2018 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 8. Develop population estimates of razorback sucker in Colorado River
Task 9. Analyze larval samples (Larval Fish Lab)
Task 10. Analyze data
Task 11. Write annual report

Tasks Not Accomplished

Tasks 7 and 12. The final contaminants report (Barb Osmundson) is in progress. This work was not funded by the Bureau of Reclamation through the Recovery Program. A draft of this report was provided to the Biology Committee as a courtesy (for informational purposes only) by Ms. Osmundson on 18 October 2017.

Tasks 13 and 14. A draft report has been submitted.

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 Dam). Dates for the Gunnison River electrofishing trips were August 6th-10th and October 1st-5th. Captures from the August sampling trip include thirty-one razorback sucker and one Colorado pikeminnow. The Colorado pikeminnow was initially captured at the Redlands Fish Ladder and translocated upstream to Bridgeport (RM 29.1) on June 28, 2018. Captures from the October sampling trip include 146 razorback sucker and one

razorback sucker/flannelmouth sucker hybrid. One hundred two of the 146 razorback sucker captured were recently stocked at Delta, Colorado. The remaining 44 razorback sucker had been at large in the Gunnison River from one to four years.

Electrofishing sampling was completed on the Colorado River portion of the study area on September 25th and 26th. Three razorback sucker were captured during electrofishing sampling in the Colorado River portion of the study area. All three endangered fish captured in 2018 contained a PIT tag when captured. The 2011-2018 Colorado River electrofishing sampling data have been entered and comparisons with the 1994 and 1995 CPE data are presented in Figure 1.

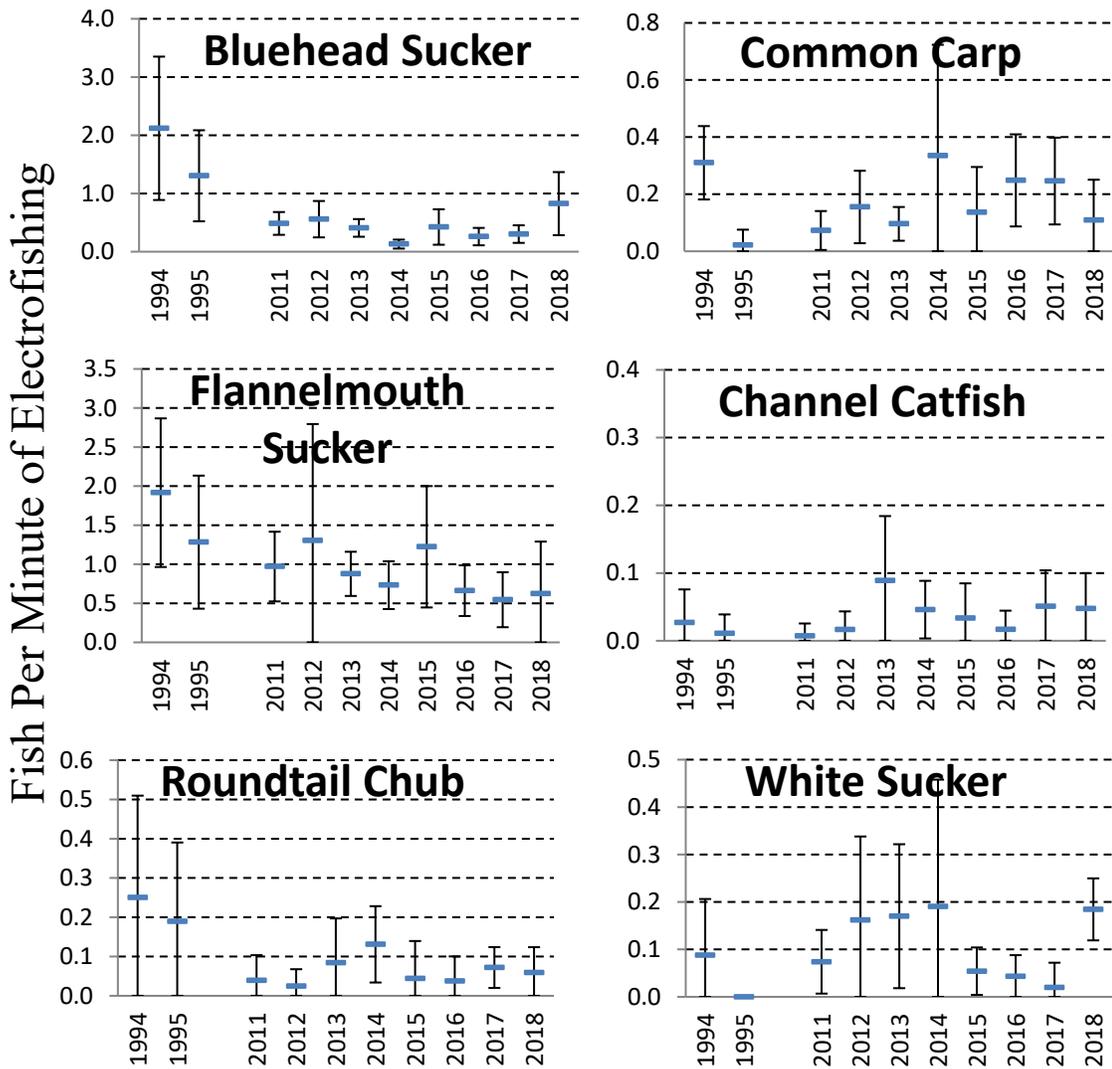


Figure 1. Electrofishing catch rates (mean number of fish caught per minute of electrofishing) of the six most commonly collected species. Errors bars represent 95% confidence intervals.

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 commonly collected species. Study reaches were held constant from the early sampling period (1994-1995). No differences exist in catch rates of bluehead sucker, common carp, flannemouth sucker, channel catfish, roundtail chub or white sucker between the recent sampling period (2011-2018) relative to the catch rates during the early sampling period (1994-1995). Mean catch rates include all size classes of each species captured by electrofishing.

Larval sampling began May 2nd on the Colorado River and May 15th on the Gunnison River. Sampling continued until July 26th on both the Colorado and Gunnison Rivers. Larval fish samples collected in 2018 were transferred to the CSU-Larval Fish Lab in October 2017. Seine sampling for young-of-year fishes was completed from September 11th-13th on the Gunnison River and September 18th-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 2018.

Tissue samples from bonytail, Colorado pikeminnow, razorback sucker, and razorback sucker/flannemouth sucker hybrids have been collected in the Gunnison River during previous years. No tissue samples were collected in 2018. Samples from previous years have been analyzed, but a report has not been finalized. See first paragraph under the heading “shortcomings” for an explanation.

While no razorback sucker population estimate has been calculated for the 18-Mile Reach of the Colorado River, preliminary population estimates were generated for razorback sucker in the Colorado River (from Palisade, CO downstream to its confluence with the Green River). Data used to generate razorback sucker population estimates were obtained during the Colorado pikeminnow population estimate studies done in 2008-2010 and 2013-2015. The results are as follows:

<u>Year</u>	<u>Point Estimate</u>	<u>95% Confidence Intervals</u>
2008	2,449	1,581-3,317
2009	3,476	2,444-4,507
2010	4,895	3,845-5,945
2013	5,035	3,755-6,315
2014	5,960	4,774-7,147
2015	8,078	6,735-9,421

Shortcomings

The preparation of the final contaminants report by Barb Osmundson will be funded outside the Recovery Program. Ms. Osmundson, whom retired in spring 2017, has completed a draft of the report, but the timeline for her to finalize the report is uncertain. Ms. Osmundson has committed to completing the report regardless of her retirement.

