

- 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): R13PG40018
- Project/Grant Period: Start date (Mo/Day/Yr): 7/20/2011  
End date: (Mo/Day/Yr): 12/31/2015  
Reporting period end date: 9/30/2014  
Is this the final report? Yes \_\_\_\_\_ No X
- III. Principal Investigator(s): Darek Elverud, Principle Investigator  
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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 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 Redlands Diversion) 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 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- ongoing  
Juvenile and adult 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 2014 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 Dam). Dates for the Gunnison River electrofishing trips were August 11<sup>th</sup>-15<sup>th</sup> and October 6<sup>th</sup>-10<sup>th</sup>. Captures from the August sampling trip include eight bonytail, three Colorado pikeminnow, and seven razorback suckers. Two of the Colorado pikeminnow were fish that were captured at the Redlands fish ladder in 2014 and released upstream. The remaining Colorado pikeminnow was captured at Redlands fish ladder in a previous year and released upstream. Captures from the October sampling trip include three bonytail and 11 razorback suckers. The October sampling trip occurred after razorback

suckers had been stocked in the Gunnison River in the fall of 2014. It is suspected that the majority of the razorback suckers captured during the October trip were from these recent stockings. At the time of this report, data submission to the database manager for those recently-stocked fish is still in progress.

Electrofishing sampling was completed on the Colorado River portion of the study area on October 1<sup>st</sup> and 2<sup>nd</sup>. A total of eight razorback suckers were captured during electrofishing sampling in the Colorado River portion of the study area. No other endangered fishes were captured. Seven of the eight razorback suckers captured in 2014 had a PIT tag when captured. The 2011-2014 Colorado River electrofishing sampling data have been entered and comparisons with the 1994 and 1995 CPE data are presented in (Figure 1).

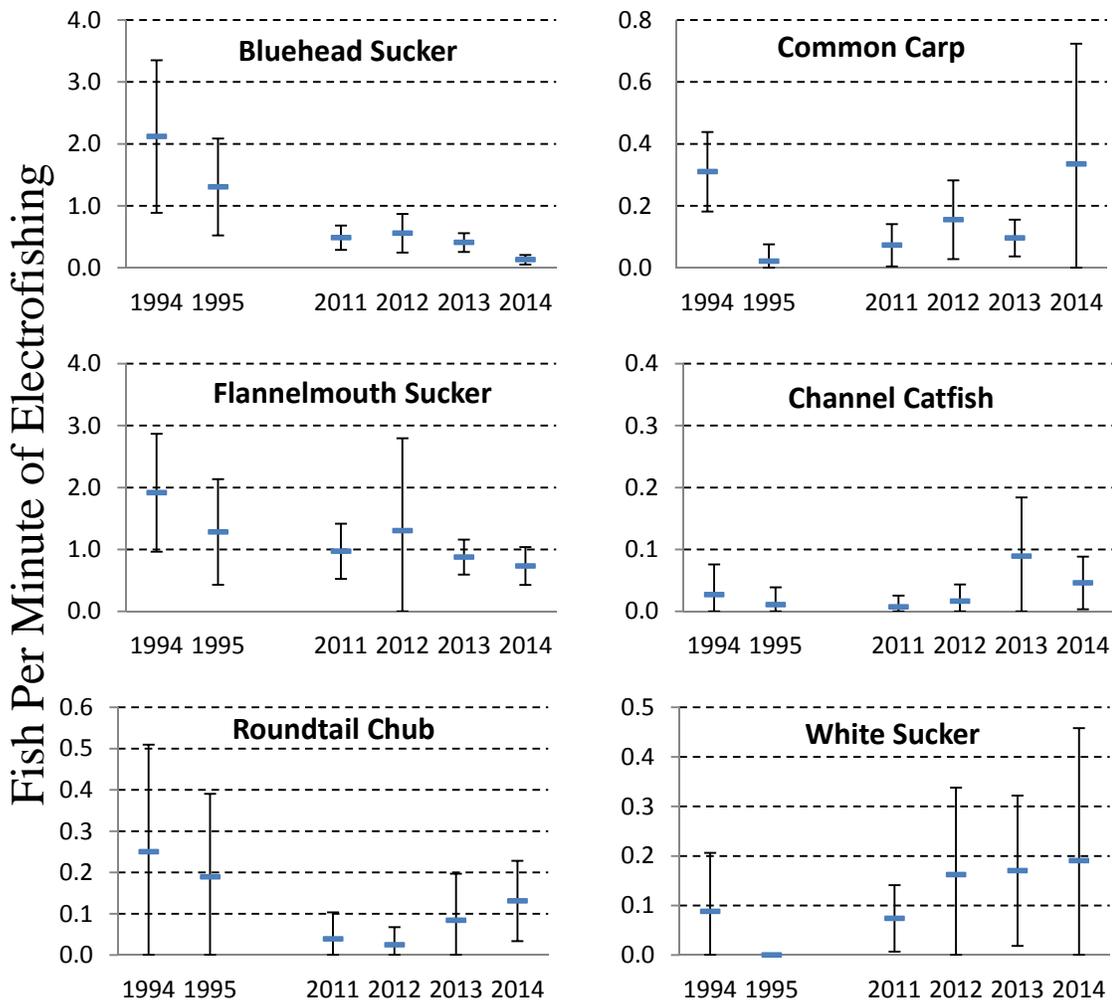


Figure 1. Electrofishing catch rates (mean number of fish caught per minute of electrofishing) of the six most commonly collected species. Errors bars represent 95% confidence intervals.

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, flannemouth sucker, channel catfish, roundtail chub or white sucker between the recent sampling period (2011–2014) 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 2014 relative to data collected during the early sampling period. Mean catch rates include all size classes of each species captured by electrofishing.

Larval sampling began May 5<sup>th</sup> on the Gunnison River and May 7<sup>th</sup> on the Colorado River. Sampling continued until August 19<sup>th</sup> on the Gunnison River and August 29<sup>th</sup> on the Colorado River. Larval samples collected in 2014 will be transferred to the CSU-Larval Fish Lab in December, 2014. Seine sampling for young-of-year fishes was completed from September 9<sup>th</sup>-11<sup>th</sup> on the Gunnison River and September 15<sup>th</sup>-16<sup>th</sup> on the Colorado River. All fishes were identified in the field during the 2014 seine sampling. No endangered fishes were captured during seine sampling in either the Colorado or Gunnison Rivers in 2014.

Tissue samples from bonytail, Colorado pikeminnow, razorback sucker, and razorback sucker/flannemouth sucker hybrids were collected both in the mainstem Gunnison River during electrofishing sampling as well as at the Redlands fish ladder in 2014. A total of 32 tissue samples were taken between the two sites. Twenty-one tissue samples were taken at the Redlands fish ladder and 11 were collected during the August Gunnison River electrofishing trip. No tissue samples were collected during the October Gunnison electrofishing trip as all endangered fish captured during the October trip appeared to have been recently stocked.

Seventeen tissues samples were collected from Colorado pikeminnow in 2014 (1 in the Gunnison River, 16 at Redlands fish ladder). The tissue sample from the Colorado pikeminnow collected in the Gunnison River was from a fish that had been moved upstream past the Redland fish prior to 2014. Seven tissue samples were collected from bonytail (three in the Gunnison River, four at Redlands fish ladder). Seven tissue samples were collected from razorback sucker (seven from the Gunnison River. One tissue sample was collected from a razorback/flannemouth sucker hybrid at Redlands fish ladder. Results from the tissue samples will likely be available in approximately six months.

While no 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 these 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

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 2014, no smallmouth bass were collected or observed during electrofishing sampling on the Gunnison River upstream of Redlands Dam.
- IX. Recommendations: Continue utilizing catch rate data for monitoring in the Gunnison River as the number of endangered fishes collected in the Gunnison River is currently insufficient for mark-recapture abundance estimates.
- X. Project Status: Field work and data collection are on track and ongoing. Abundance estimates for razorback sucker riverwide for 2005 and 2008–2010 have been generated. However, abundance estimates for this species prior to 2011 specific to the 18-Mile Reach of the Colorado River are behind schedule. Data collection for the next 3 year estimate (2013–2015), collected during the Colorado pikeminnow abundance estimate project # 127, is on schedule.
- XI. FY 2014 Budget Status
  - A. Funds Provided: \$79,167
  - B. Funds Expended: \$79,167
  - C. Difference: \$0
  - D. Percent of the FY 2014 work completed, and projected costs to complete: 100%
  - E. Recovery Program funds spent for publication charges: \$0
- XII. Status of Data Submission: All data has been entered and checked for errors. Data will be submitted to the database manager.
- XIII. Signed: 

<u>Darek Elverud</u>	<u>11/14/2014</u>
Principal Investigator	Date