

I. Project Title: Rearing razorback sucker in Baeser Bend, wetland of the Green River

II. Principal Investigator:

Aaron Webber, Fish Biologist
U. S. Fish and Wildlife Service
1380 South 2350 West
Vernal, UT 84078
(435) 789-4078 ext 21 / Fax (435) 789-4805
aaron_webber@fws.gov

III. Project Summary:

It is thought that razorback suckers that are raised in a natural wetland should have better survival than those raised in a hatchery raceway. Baeser Bend is a natural wetland where we have stocked larval and fingerling razorback suckers in an attempt to allow them to learn the behavioral skills needed to survive in the wild (e.g. foraging, predator avoidance). We stock these fish into the wetland, wait until they grow to a size sufficient to avoid most predation in the wild, and then capture, tag, and release them into the Green River.

IV. Study Schedule: 2008-2011

V. Relationship to RIPRAP:

Green River Action Plan: Mainstem
IV.A. Augment or restore populations as needed.
IV.A.1. Develop state stocking plan for the four endangered fishes of the Green River.
IV.A.1.c. Implement plan.

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

The Ouray National Fish Hatchery stocked 14,900 razorback suckers (average TL 106 mm) into Baeser Bend October 31, 2009 after we harvested 1,026 razorbacks and released them into the Green River. We pumped water into Baeser during the last week of November to facilitate razorback suckers overwintering.

Ice melted the third week of March, and we set fyke nets April 5, 2010. Our objective was to estimate the razorback sucker population. We checked nets for 3 days and pulled on April 8. We estimated 390 (0-804 95% CI) fish from the 2008 cohort and 8065 (6888-9242 95% CI) fish from the 2009 cohort using a mark-recapture model. We PIT

tagged all untagged fish > 150 mm TL to be able to assess survival over the summer (21 fish from 2009 cohort, 60 fish from 2008 cohort). A graph of the size frequency of the catch is shown in Figure 1. After we had conducted our population monitoring, the hatchery stocked 180 tagged razorback suckers (\bar{X} = 306 mm) that had been used in a tag retention study into Baeser Bend.

We pumped water into Baeser Bend to maintain water levels in April, July, and September. Water levels remained above 3 ft. during the entire summer. We observed that during high water during the months of May and June, water levels in Baeser Bend appeared to rise and fall closely with the river so that we did not need to pump water during these months. Fish were attracted to the inflow during the July and September pumping events, and we used this method to sample fish. We turned off the pump and netted the fish that remained in the pool created by the inflow. We captured 46 razorbacks in July, only one of which was PIT tagged. We tagged and released 12 of these into the Green River which were from the 2008 cohort. The remaining we tagged and released back into Baeser Bend to evaluate survival. We only captured 9 razorbacks during the pumping event in September and 12 in nets that we decided to set since we would be able to check them with minimal time investment when we returned to refuel the pump. None of these fish were recaptured fish and all were tagged and released into Baeser Bend.

On October 4, we set 21 fyke nets and 2 trammel nets to harvest razorbacks from Baeser Bend. We checked the nets the next day and the trammel nets had 50 razorbacks, of which 29 died. We pulled the trammel nets and used only fyke nets for the remainder of our harvest. We kept the remaining nets set through October 25. Through this effort, we captured, tagged and released 478 razorbacks into the Green River. Overall, in 2010 we released 490 razorbacks (\bar{X} = 252 mm) into the Green River. We suspect there are more razorbacks there, but netting became very inefficient by the end of our harvesting effort.

Of the 478 razorbacks, only 8 were previously tagged and none were from the 2008 cohorts. Of the 8 tagged fish, 7 were fish we tagged in September and 1 was tagged in July. We expected to catch tagged fish from our April tagging, but did not. We suspect that something drastic happened to the population from April until September. Potential explanations are severe bird predation, or water quality issues. We hypothesized that the larger 2008 cohort of fish was hiding in the reeds and not moving, and thus were not susceptible to fyke nets. We used a barge shocker to sample this habitat, but found no razorbacks in the reeds and only one in the middle of the wetland. We learned that capturing the razorbacks is the most difficult challenge of this project, and sites where draining structures are present (i.e. Old Charley, Leota, and Johnson Bottoms) may be better because capturing razorbacks in such sites would be easier than at Baeser Bend.

We plan to pump water into Baeser before winter 2010/2011. We will then salvage any razorbacks in the spring of 2011 and tag and release them into the Green River. We will then allow Baeser to naturally reset over the winter of 2011/2012. Baeser Bend would then be available for use as an acclimation or study site in spring 2012 pending Biology

Committee approval.

The only data available to date that would provide any indication of survival of fish from Baeser Bend are two samples from the Utah Division of Wildlife Resources. One is 31 razorback suckers that were detected on a PIT tag antennae at the Stirrup wetland on the Green River during the summer of 2010. Seven of these fish were stocked from Baeser Bend in the summer and fall of 2009. The second is a sample of 185 razorback suckers captured during nonnative fish removal electrofishing passes in the middle Green River during the summer of 2010, of which 9 individuals were razorback suckers released from Baeser during 2009. This is promising data and gives us hope that this project has made a difference in the razorback sucker population in the Green River.

An additional part of this scope of work was added after the Recovery Program prioritized the need to sample Johnson Bottoms and Thunder Ranch in an attempt to determine if endangered fish were present in the respective wetlands. On October 26, we set fyke and trammel nets and minnow traps in the wetland at Thunder Ranch. We pulled the nets the next day and found only nonnative fish: channel catfish, fathead minnow, bullhead catfish, stickle back, carp, and green sunfish.

On October 27 we moved the nets to Johnson Bottoms. The next day we found only nonnative fish in the nets: channel catfish, fathead minnow, bullhead catfish, stickle back, carp, crappie, and green sunfish. We found multiple year classes and young of year of many of these species indicating that the fish overwinter in the wetland. We did not, however, find multiple year classes of fish at the Thunder Ranch wetland.

VII. Recommendations:

We recommend resetting Baeser Bend during the winter of 2011/2012 and allowing the Biology Committee to determine a use for Baeser Bend in the future. We have shown that Baeser Bend is a suitable site to acclimate razorback suckers and hope that it can be used in the future to conduct studies, or to be used as an acclimation site for razorback sucker and/or bonytail.

Johnson Bottoms has potential to be a successful site for endangered fish to use for various stages of their life history. The presence of the nonnative fish, however, will likely hinder any native fish we stock into the wetland or that naturally would enter. Resetting this wetland with rotenone before high water, and then either stocking the wetland with larval razorback sucker or allowing natural larvae to enter the wetland initially with no nonnative fish are options to consider to use this wetland for endangered fish recovery.

VIII. Project Status: on track and ongoing

IX. FY 2010 Budget Status:

- A. Funds Provided: \$59,859.81
- B. Funds Expended: \$59,859.81
- C. Difference: 0
- D. Percent of the FY 2010 work completed, and projected costs to complete: 0
- E. Recovery Program funds spent for publication charges: 0

X. Status of Data Submission: Data will be submitted to Travis Francis by December 2010.

XI. Signed: Aaron Webber November 2, 2010
Principal Investigator Date

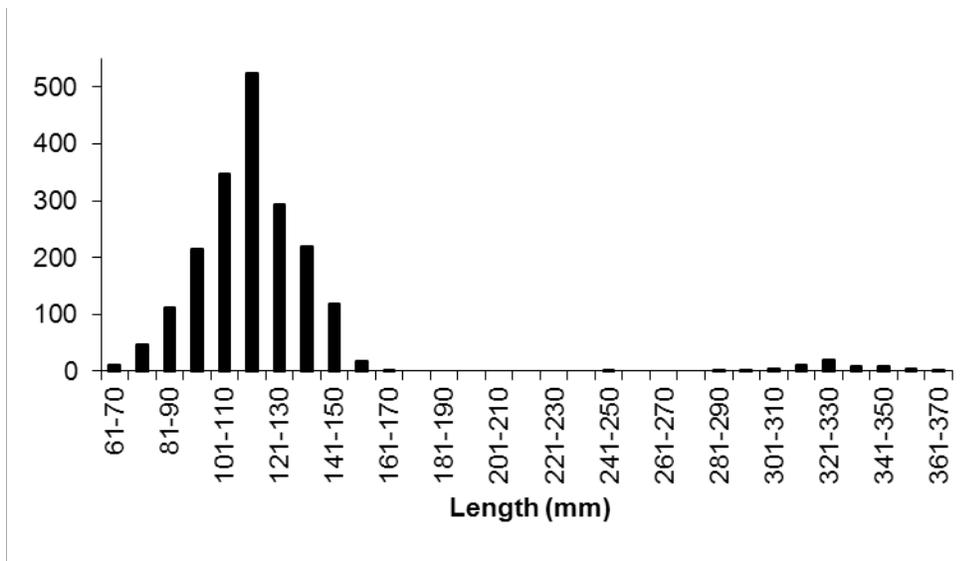


Figure 1. Size frequency of razorback suckers in Baeser Bend April 2010.