

COLORADO RIVER RECOVERY PROGRAM
FY 2018 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: FR-164

- I. Project Title: Middle Green River floodplain sampling
- II. Bureau of Reclamation Agreement Number: R15PG00083
Project/Grant Period: Start date: 10/01/2014
End date: 09/30/2019
Reporting period end date: 09/30/2018
Is this the final report? Yes No
- III. Principal Investigators:
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- IV. Abstract:
None of the floodplain wetlands managed and/or sampled in this project flooded in 2018 due to below average peak runoff in the Green River downstream of the Yampa River confluence. Therefore, larval fish sampling at floodplain connections did not occur nor did mid-summer wetland sampling. However, three days of active sampling was conducted in late September to determine if bonytail and razorback sucker stocked in Leota Bottom in April 2018 had survived.
- V. Study Schedule: 2012-ongoing
- VI. Relationship to RIPRAP:
Green River Action Plan: Mainstem
I.A.3.d.1. Conduct real-time larval razorback and Colorado pikeminnow sampling to guide Flaming Gorge operations.
I.D.1.b.(4)(a) Implement LTSP
V.D.1. Implement razorback sucker monitoring plan
- VII. Accomplishment of FY 2018 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Larval Trigger and Spring Peak Flow Hydrology

U.S. Fish and Wildlife Service monitors larval razorback sucker (RZB) drift through the use of light traps, starting each spring in May or as water temperatures indicate spawning is imminent. Larval light trap sampling began this year on May 8 and commenced June 8. A total of 138 samples were collected from four sites including Cliff Creek, the Stewart Lake outlet, Walker Hollow, and Baeser Wash. We detected the first RZB larvae on May 17 at the Stewart Lake outlet, when mean daily flow at Jensen, UT was 8,600 cfs and mean water temperature was 15.0°C. Bureau of Reclamation began increasing Flaming Gorge releases on May 21, to a peak of 6,600 cfs on May 29 for one day, after which releases were ramped down to base flow (average = 1,910 cfs) by June 8.

A much below average peak flow in the Yampa River (9,160 cfs) occurred on May 13, four days before we detected razorback sucker larvae in light traps. Since releases from Flaming Gorge dam were somewhat abbreviated, the combined timing and amplitude of peak flow in the Green and Yampa Rivers in 2018 precluded the connection of all floodplains sampled in this project this year. The 2018 peak flow recorded by the USGS Green River at Jensen gage of 12,100 cfs occurred on May 30, one day after the peak release at Flaming Gorge Dam, filling only Stewart Lake and the Escalante wetland.

Johnson Bottom Wetland Management and Sampling Results

Water Management

Water management was not necessary this year at Johnson Bottom due to below average runoff. The Green River did not connect to this wetland and it was dry by the end of May.

Fish Sampling

Preliminary sampling aimed at determining the level of overwinter survival in Johnson Bottom was conducted in April. Seining of the kettle and wetland yielded an unquantified, yet low number of nonnative cyprinids such as fathead minnow, red shiner, and carp. Although sampling during and after runoff was deemed unnecessary, we are hopeful that the complete drying of this wetland in 2018 will promote survival of native and endangered fishes in the future.

Sampling Results for Other Wetlands

Leota Bottom

Ouray National Fish Hatchery stocked 506 adult bonytail and 192,860 RZB fry into Leota Bottom unit 10 (L10) on April 11, 2018. The RZB were stocked as part of an experiment by Colorado State University Larval Fish Lab to determine light trap efficiency. As with other wetlands along the middle Green River, most of the Leota complex had dried by mid-summer. Although very low, L10 maintained some water as the Ouray National Wildlife Refuge diverted Pelican Lake water into the unit; by late September, the deepest locations found measured approximately 40 cm. Active and passive methods were used to determine whether any of the bonytail stocked in April had survived in this wetland. These methods included PIT tag antenna monitoring, fyke netting, backpack electrofishing, and using PIT tag readers to scan locations where numerous pelicans had been residing. Despite the effort, we only located one PIT tag buried under a few centimeters of mud with a hand held reader. The STReAMS database was searched to confirm that this PIT tag had been implanted in one of the bonytail stocked in April.

Other Wetlands

Similar to Johnson Bottom, other wetlands that have previously been sampled in this project such as the Stirrup, Above Brennan, Leota unit 7, and Sheppard Bottom were dry by the end of summer.

Wyasket Lake and Old Charley Bottom were also dry. Although the desiccation of these floodplain wetlands prevented endangered fish production in 2018, it also eliminated all nonnatives within these nursery habitats.

VIII. Additional noteworthy observations:

IX. Recommendations:

- We recommend continuing light trapping to evaluate the entrainment of RZB, as well as other native species, under the Larval Trigger Study Plan. This work provides information on presence of larval RZB in monitored floodplain habitats, which has not historically been part of the long term light trapping study under Project 22f.
- Continue to manage Johnson Bottom for larval RZB entrainment and growth. Sample fish through use of seines during summer to track growth and survival.
- Focus wetland sampling and management more intensively on Johnson and Sheppard bottoms. A growing body of evidence suggests natural floodplain connections without nonnative fish exclusion rarely result in RZB survival, especially if the wetland harbors a pre-existing population of nonnative species. Fall sampling is labor intensive, and we believe effort would be better spent attempting to maximize success at managed wetlands. Given that wetlands reset naturally in 2018, if wetland connection occurs in 2019, we will sample previously fishless wetlands after successful entrainment in spring, as we did in 2011 and 2014.
- Stock bonytail either in the Johnson Bottom wetland canal during high flows, or directly into the wetland. Bonytail stocked into the canal could access the river, and the canal could serve as a low velocity transition area. Spawning within Stewart Lake or Johnson Bottom has been documented in 2015, 2016, and 2017.

X. Project Status: on track and ongoing

XI. FY 2018 Budget Status

- A. Funds Provided: \$34,369
- B. Funds Expended: \$34,369
- C. Difference: -0-
- D. Percent of the FY 2018 work completed: 100%
- E. Recovery Program funds spent for publication charges: -0-

XII. Status of Data Submission: Data will be submitted to the database manager in December 2018.

XIII. Signed: Chris Smith
Principal Investigator

16 November 2018
Date