

COLORADO RIVER RECOVERY PROGRAM
FY 2019 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: 158

I. Project Title: Assessment of larval Colorado pikeminnow presence and survival in low velocity habitats in the middle Green River

II. Bureau of Reclamation Agreement Number(s): R19AP00059 (UDWR)
R15PG00083 (USFWS)

Project/Grant Period: Start date (Mo/Day/Yr): 05/01/2014
End date: (Mo/Day/Yr): 09/30/2019
Reporting period end date: 09/30/2019
Is this the final report? Yes _____ No X

III. Principal Investigator(s):

Matthew J. Breen and Michael S. Partlow
Utah Division of Wildlife Resources, Northeast Regional Office
318 North Vernal Avenue, Vernal, Utah 84078
Phone: 435-781-9453; Fax: 435-789-8343
E-mail: mattbreen@utah.gov

Christian Smith
Green River Basin Fish and Wildlife Conservation Office
U. S. Fish and Wildlife Service
1380 S 2350 W, Vernal, UT 84078
(435) 789-0351
E-mail: christian_t_smith@fws.gov

IV. Abstract:

This study seeks to monitor age-0 Colorado pikeminnow (CPM) in the middle Green River to determine their presence, location, and status during the summer and collect age-0 CPM in early fall that will be transferred to and bolster the Southwestern Native Aquatic Resources and Recovery Center (SNARRC) CPM broodstock. These fish will produce offspring that may augment the Green River CPM subpopulation in the future. Since the scope of this project changed during the field season in 2019, only the broodstock collection component was conducted. Encompassing five days of effort between 26 September and 9 October, 115 age-0 CPM were collected and transferred to SNARRC in 2019.

V. Study Schedule: 2009- Ongoing

VI. Relationship to RIPRAP:

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

IV. Conserve genetic integrity and augment or restore populations.

IV.A.4. Secure and manage the following species in hatcheries (according to the

Genetics Management Plan).

IV.A.4.d. Colorado pikeminnow

IV.A.4.d.(1) Upper Colorado River Basin

GREEN RIVER ACTION PLAN: MAINSTEM

I.D.1. Evaluate and revise as needed, flow regimes to benefit endangered fish populations.

I.D.2.c. Develop baseflow and spike flow study plan.

V.C.3 Monitor age-0 Colorado pikeminnow in backwaters.

VII. Accomplishment of FY 2019 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1. Determine age-0 Colorado pikeminnow presence, densities, and overall fish community composition in backwaters throughout the summer base flow period.

Funding was not provided to complete this task in FY 2019.

Task 2. Collect age-0 Colorado pikeminnow from backwaters during fall and transfer them to SNARRC where they will be used for broodstock.

Over the course of five days between 26 September and 9 October 2019, the Green River Basin Fish and Wildlife Conservation Office (GRB FWCO), San Juan River Recovery Program, and U.S. Fish and Wildlife Service New Mexico Ecological Services Field Office collected 130 Colorado pikeminnow (CPM) from 12 distinct backwaters within the lower 24 miles (river mile [RM] 272.1-248.1) of the study reach. The majority of captures (n=67) occurred on 9 October within the Ouray National Wildlife Refuge. Our catch rate was 1.22 fish/100 m², which in comparison to many years of ISMP data (e.g., Breen and Michaud 2018) appears to be moderately low.

Approval of the Ouray National Fish Hatchery (ONFH) as a holding facility for age-0 CPM was obtained from Utah Division of Wildlife Resources (UDWR) on 26 September 2019. Without the capability of holding fish in the controlled hatchery environment, fewer fish would have been transferred to SNARRC because transportation requires > 26 hrs travel time from ONFH to Dexter, New Mexico and having experienced hatchery personnel to monitor fish health likely improved CPM survival during transport. A total of 115 CPM were transported from ONFH to SNARRC on 10 October 2019, and all of these fish were alive as of 14 November 2019.

Although 130 CPM were collected in total, 15 individuals collected on September 26 2019 did not survive. Among the mortalities were three fish that perished while being transferred to ONFH, and the other 12 within days of being transferred to the hatchery. A histological assessment conducted on three of these fish reported that all three fish displayed “severe bacterial lesions and parasitic worms present in visceral fat near pancreatic tissue” (Bozeman Fish Health Center, personal communication). Regardless of the mechanism, all effort to eliminate handling stress was made in the field from this point forward. Cooler weather after 26 September 2019 presumably reduced handling

stress as well. If air temperature did indeed reduce stress, corresponding cooler water temperature reduced stress as well (Figure 1).

VIII. Additional noteworthy observations:

We do not have any additional noteworthy observations to report at this time.

IX. Recommendations:

- Continue collecting age-0 CPM in backwaters along the middle Green River applying a similar strategy in the future. This was a pilot study in 2019, but our results appear successful, especially given the low captures reported from age-0 CPM monitoring projects in the Green River basin this year (Breen and Michaud 2019; E. Kluender and K. Bestgen, Colorado State University, personal communication).
- Coordinate with SNARRC and other partners (San Juan Recovery Program, ONFH, UDWR) to determine how to increase age-0 CPM survival, improve field collection methods and timing, and establish a structured line of communication between partners.
- Explore the possibility of using newer physical habitat surveying methods while sampling or collecting fish in backwaters with seines. Survey grade quality data collection has become faster with modern equipment and in some cases less expensive. Although correlating biological (fish) data with physical data in backwaters has been difficult to date, it might be achieved if there is also a temporal linkage.
- The scope of this project was changed during the 2019 season to accommodate the growing need to augment the CPM broodstock. However, we recommend that the Recovery Program does not lose sight of recommendations from Breen and Jones (2019). Specifically, we recommend reinstating the previous objectives for this scope of work to better understand predation dynamics and the extent of predation on age-0 CPM in low velocity habitats:
 - 1) Deplete nonnative fish in backwaters prior to larval CPM drift and apply backwater blocking treatments (previously Task 2).
 - 2) Determine fish community composition in manipulated and control backwaters throughout the summer base flow period (previously Task 3).
 - 3) Fyke-netting backwaters to determine predation effects (previously Task 5).

X. Project Status:

This project is on track and ongoing

XI. FY 2019 Budget Status:

- A. Funds Provided: \$59,654
- B. Funds Expended: \$59,654
- C. Difference: \$0
- D. Percent of the FY 2019 work completed, and projected costs to complete: 100%
- E. Recovery Program funds spent for publication charges: \$0

XII. Status of Data Submission (Where applicable):

Data for this project will be submitted to the Recovery Program database manager in December 2019.

XIII. Signed:

Principal Investigator: Matthew J. Breen & Chris Smith

Date: November 13, 2019

XIV. References

Bestgen, K.R. and A.A. Hill. 2016. Reproduction, abundance, and recruitment dynamics of young Colorado pikeminnow in the Green and Yampa rivers, Utah and Colorado, 1979-2012. Final report to the Upper Colorado River Endangered Fish Recovery Program, Project FW 51 BW-Synth, Denver, Colorado. Department of Fish, Wildlife, and Conservation Biology, Colorado State University, Fort Collins. Larval Fish Laboratory Contribution 183.

Breen, M.J. and M.T. Jones. 2019. Assessment of larval Colorado pikeminnow presence and survival in low velocity habitats in the middle Green River: 2009–2012. Project #158 Final Report of Utah Division of Wildlife Resources to the Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

Breen, M.J. and C.M. Michaud. 2018. Annual fall monitoring of young-of-year Colorado pikeminnow and small-bodied native fishes. Project 138. Annual Report to the Upper Colorado River Endangered Fish Recovery Program. Denver, Colorado.

Breen, M.J. and C.M. Michaud. 2019. Annual fall monitoring of young-of-year Colorado pikeminnow and small-bodied native fishes. Project 138. Annual Report to the Upper Colorado River Endangered Fish Recovery Program. Denver, Colorado.

APPENDIX:

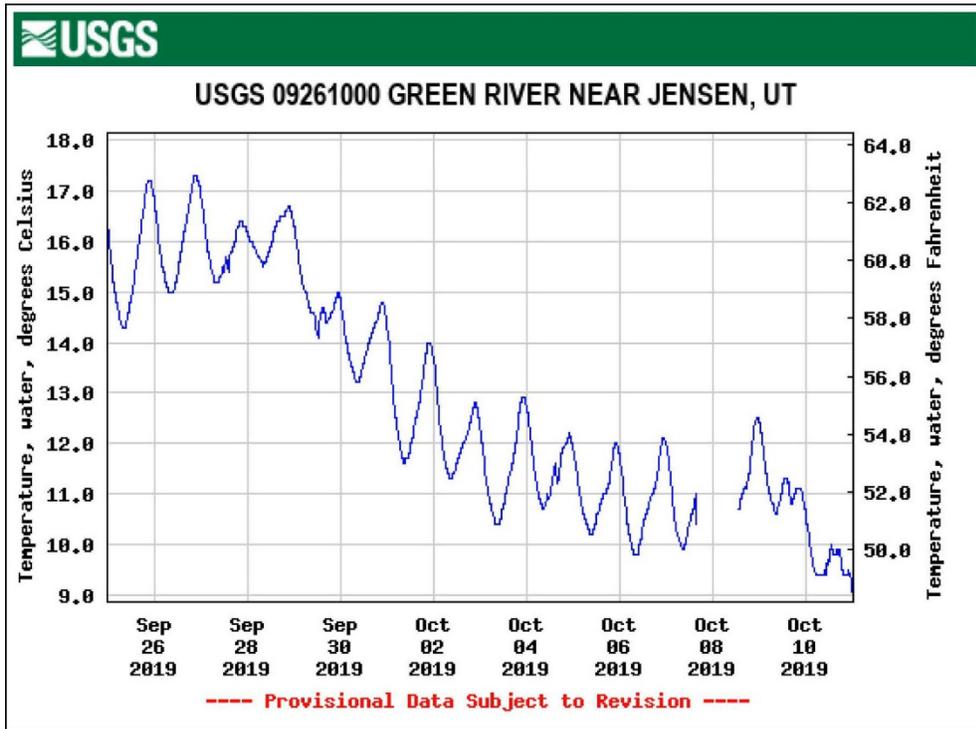


Figure 1. Middle Green River water temperatures from 25 September–10 October 2019 (USGS gauge #09261000; Jensen, UT).

ANNUAL PERFORMANCE PROGRESS REPORT (PPR)

BUREAU OF RECLAMATION AGREEMENT NUMBER: R19AP00059

UPPER COLORADO RIVER RECOVERY PROGRAM PROJECT NUMBER: 158

Project Title: Assessment of larval Colorado pikeminnow presence and survival in low velocity habitats in the middle Green River

Principal Investigator:

Matthew J. Breen and Michael S. Partlow
Utah Division of Wildlife Resources
Northeast Regional Office
318 North Vernal Avenue
Vernal, Utah 84078
Phone: 435-781-9453; Fax: 435-789-8343
E-mail: mattbreen@utah.gov

Project/Grant Period:

Start date (Mo/Day/Yr): 10/04/2014

End date: (Mo/Day/Yr): 09/30/2019

Reporting period end date (Mo/Day/Yr): 09/30/2019

Is this the final report? Yes _____ No X

Performance:

Funding for Task 1, Determine age-0 Colorado pikeminnow presence, densities, and overall fish community composition in backwaters throughout the summer base flow period and Task 3, Data analysis and reporting, was not provided to the Utah Division of Wildlife Resources so there is nothing to report.

ANNUAL PERFORMANCE PROGRESS REPORT (PPR)

BUREAU OF RECLAMATION AGREEMENT NUMBER: R15PG00083

UPPER COLORADO RIVER RECOVERY PROGRAM PROJECT NUMBER: 158

Project Title: Assessment of larval Colorado pikeminnow presence and survival in low velocity habitats in the middle Green River

Principal Investigator:

Christian Smith, USFWS
1380 S 2350 W, Vernal, UT 84078
435-789-0351; christian_t_smith@fws.gov

Project/Grant Period:

Start date (Mo/Day/Yr): 10/01/2014

End date: (Mo/Day/Yr): 09/30/2019

Reporting period end date (Mo/Day/Yr): 09/30/2019

Is this the final report? Yes _____ No X

Performance:

The Green River Basin FWCO completed five days of age-0 Colorado pikeminnow (CPM) collection effort in the middle Green River as identified in Task 1. Collection effort occurred in late September and early October. Coordination with Recovery Program partners such as Southwestern Native Aquatic Resources and Recovery Center (SNARRC) began in July. This coordination involved activities such as collecting surrogate fish species (red shiner) from the study reach and sending them to the Bozeman Fish Health Center to obtain approval to use Ouray National Fish Hatchery as a CPM holding facility until fish could be transferred to SNARRC. This report satisfies the reporting and analysis requirements of Task 3, and all data will be submitted to the Recovery Program database manager for inclusion into the STReaMS database. All work identified in the scope of work for 2019 has been completed.