

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2021 ANNUAL REPORT

PROJECT: 127

Project Title

Monitoring the Colorado Pikeminnow Population in the Mainstem Colorado River via Periodic Population Estimates

Bureau of Reclamation Agreement Number:

R20PG00024

Project/Grant Period:

Start date: 10/01/2019

End date: 09/30/2024

Reporting period end date: 09/30/2021

Is this the final report? Yes _____ No X

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Abstract:

The Interagency Standardized Monitoring Program (ISMP) was developed in 1986 to monitor population trends of Colorado pikeminnow and humpback chub in the Colorado River basin using catch per effort (CPE) indices. ISMP was expanded in 1998 to include mark-recapture population estimates of the major Colorado pikeminnow and humpback chub populations. For Colorado pikeminnow in the upper Colorado River, population estimates were conducted annually during 1991-1994, 1998-2000, 2003-2005, 2008-2010, and 2013-2015. The current three-year field sampling effort began in 2019 and was completed in 2021.

Study Schedule:

The data collection period of this study was previously planned to begin collecting data in 2018 and continue through 2020. Due to unforeseen circumstances, field work in 2018 was cancelled. Field work, data input, and annual report writing began instead in 2019 and continued through 2021. In 2022, a final report pertaining to data collected from 2019-2021 will be completed.

Relationship to RIPRAP:

Colorado River Action Plan:

Colorado River Mainstem

V. Monitor populations and habitat and conduct research to support recovery actions.

V.D. Estimate Colorado pikeminnow populations in the upper Colorado River.

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Accomplishment of FY 2021 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

In 2021, sampling began on 23 March and was completed on 29 June. Five passes were completed on the upper reach and three passes were completed on the lower reach. Low flows in the Colorado River during April and early May caused delays in sampling some reaches. Low flows in 2021 also precluded trammel net sampling of backwater habitats which may have negatively impacted the total catch of Colorado pikeminnow, particularly in the lower reach of the study area.

Captures of listed species in 2021 included 11 bonytail, 146 Colorado pikeminnow, 17 humpback chub, and 1,025 razorback sucker and 14 razorback/flannelmouth sucker hybrids. Captures of nonnative fish species included 4 black crappie, 33 bluegill, 200 green sunfish, 60 gizzard shad, 66 largemouth bass, 5 longnose suckers, 1703 smallmouth bass, 139 native sucker/white sucker hybrids, 197 walleye and 712 white suckers. It should be noted that as capturing Colorado pikeminnow is the primary goal of this project, species other than Colorado pikeminnow are only collected when doing so does not impair the crew's ability to capture Colorado pikeminnow. Non-endangered native species, salmonids, and ictalurids are not collected during this project, but are present throughout the study area.

Ten of the 11 bonytail captured contained a PIT tag at the time of capture. Five of these 10 bonytail were stocked in the spring of 2021 in either the Dolores River (three fish) or Salt Creek (two fish) near Loma, Colorado. The five PIT-tagged bonytail had been in the wild for either one (four individual bonytail) or two (one individual bonytail) years post-stocking. One hundred thirty-seven individual Colorado pikeminnow were captured with 4 Colorado pikeminnow being captured on multiple occasions. The total number of captures in the upper reach in 2021 (73 captures) is similar to the total number of upper reach captures in 2020 (83 captures). The total number of Colorado pikeminnow captures by pass in the upper reach ranged from 10 to 19 in 2021 which is also similar to previous years. Only three Colorado pikeminnow were captured multiple times in the upper reach in 2021 while seven Colorado pikeminnow were captured multiple times in 2020.

The total number of Colorado pikeminnow captures in the lower reach in 2021 (73 captures) was considerably lower than the total number of captures that occurred in 2019 (249 captures). Due to the COVID-19 pandemic, we were unable to sample the lower reach in 2020. Only one Colorado pikeminnow was captured multiple times in the lower reach in 2021. Thirty-five of the 73 captures were of Colorado pikeminnow that were > 250 mm TL. The total number of Colorado pikeminnow captures by pass in the lower reach of fish >250 mm TL ranged from six during the first pass to 23 during the third pass.

Total length of Colorado pikeminnow captured in the lower reach during 2021 ranged from 86 mm TL to 834 mm TL. In the upper reach, the total length of captured Colorado pikeminnow ranged from 462 mm TL to 882 mm TL. No captures of sub-adult (450-499 mm TL) Colorado pikeminnow occurred in either reach in 2021. A length-frequency histogram of Colorado pikeminnow captures from 2021 is presented as Figure 1.

Additional noteworthy observations:

A total of 197 walleye captures occurred during this project in 2021 and is the highest total catch of walleye during this project since 2013. One hundred forty of the 197 walleye captured were retained

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and transferred to Ike Thibideau, a graduate student at Colorado State University studying walleye diet in the Colorado and Green Rivers.

The low numbers of Colorado pikeminnow captures in the lower reach during the first two passes in 2021 are particularly concerning. It is unknown if the low number of Colorado pikeminnow captures during the first two passes were the result of the low flows or if other factors such as predation by or competition with walleye are responsible for the decrease in total catch in the lower reach since 2019.

Recommendations:

The total number of walleye captures during this project in 2021 (197) is the highest observed since 2013. Data collected during nonnative control efforts in the lower Colorado River (Project 126a) appear to show a similar trend of increased walleye captures in the lower reach. Data collected during this project also indicates that smallmouth bass are now common in the Colorado River from Westwater Canyon downstream to Moab, Utah. Allocation of nonnative removal effort in the lower reach should continue due to the increased number of walleye and the expansion of smallmouth bass. An increase in nonnative removal effort in the lower reach of the Colorado River may be warranted.

Investigate options and determine the number of passive interrogation arrays (PIAs) installations that would be necessary to utilize PIA data in the next sampling period (2024-2026) of Colorado pikeminnow population estimates to increase the number of encounters, which may increase the precision of future population estimates.

Project Status:

Data collection for this three year sampling period (2019-2021) is complete. Work on the final report for this three year sampling period is ongoing.

FY 2021 Budget Status

Funds Provided: \$156,486

Funds Expended: \$156,486

Difference: \$0

Percent of the FY 2021 work completed, and projected costs to complete: 100%, \$0

Recovery Program funds spent for publication charges: \$0

Status of Data Submission

Data from the 2021 field season has been entered, checked for accuracy, and will be uploaded to the database by mid-December.

Signed:

Darek Elverud

Principal Investigator

11/19/2021

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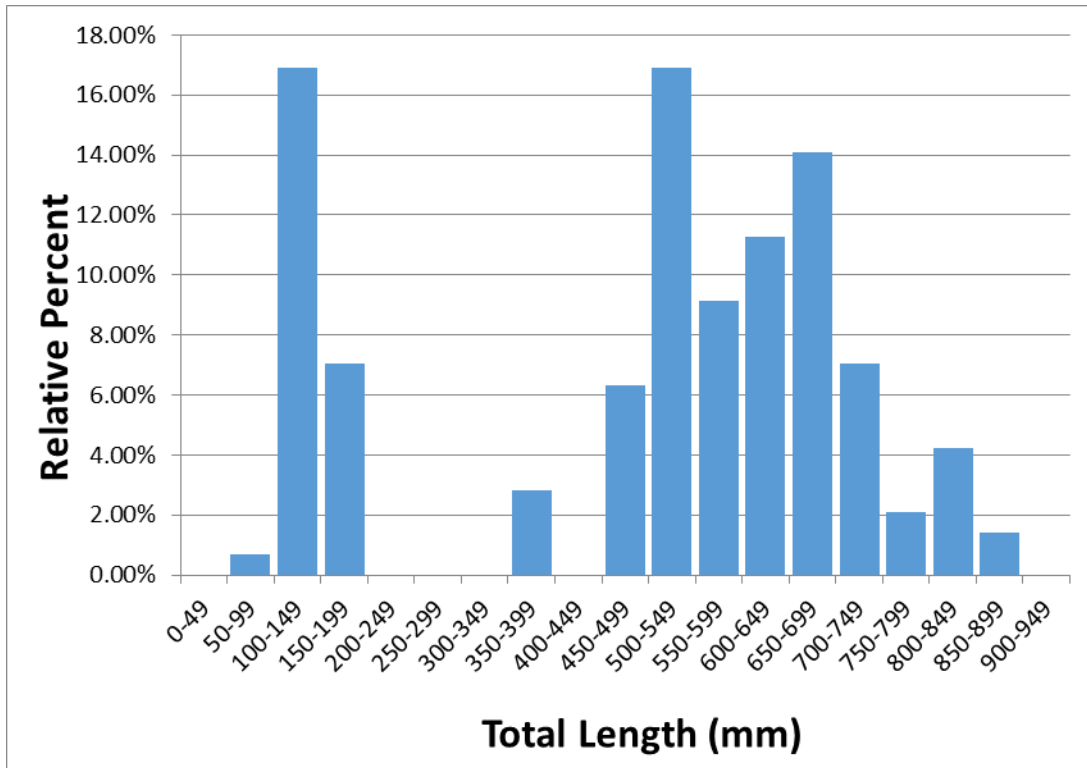


Figure 1. Length-frequency histogram of Colorado pikeminnow total lengths collected during 2021 sampling. For Colorado pikeminnow captured multiple times during 2021, only the total length from the first capture occasion is include in the histogram.