

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2023 ANNUAL REPORT

PROJECT: 29D

Project Title

J. W. Mumma Native Aquatic Species Restoration Facility
Operation and Maintenance - Colorado

Bureau of Reclamation Agreement Number:

08-FG-40-2747

Project/Grant Period:

Start date: 10/01/2007

End date: 09/30/2023

Reporting period end date: 09/30/2023

Is this the final report? Yes _____ No X

Principal Investigator:

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Abstract:

The J. W. Mumma Native Aquatic Species Restoration Facility (Mumma), located in Alamosa, Colorado, was constructed in the year 2000 to facilitate the conservation of rare aquatic native species through captive propagation, genetic conservation, scientific research, and public education and awareness. Mumma is owned and operated by Colorado Parks and Wildlife (CPW). Currently, there are 12 fish species and one amphibian species reared at Mumma. Many are listed at the State level as Threatened, Endangered or Species of Special Concern. The bonytail (*Gila elegans*, BT), is federally listed as Endangered and is given full protection under the Endangered Species Act since 1980. Mumma currently produces BT in numbers and sizes sufficient to help meet the annual stocking objectives and the Revised Integrated Stocking Plan (RISP) of the Upper Colorado River Endangered Fish Recovery Program (UCREFRP) for BT in the Upper Colorado River basin.

Study Schedule:

2002-Ongoing

Relationship to RIPRAP:

General Recovery Program Action Plan

IV. Manage genetic integrity and augment or restore populations

IV.A. Genetic management

IV.A.4. Secure and manage the following species in hatcheries (according to the Genetics Management Plan)

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IV.A.4.b. Bonytail

IV.B. Conduct annual fish propagation activities

IV.B.2. Implement revised integrated stocking plan (Integrated Stocking Plan Revision Committee 2015); supersedes all earlier stocking plans, including species-specific and individual basin plans

IV.C. Operate and maintain facilities

IV.C.4. Mumma

Green River Action Plan: Main Stem

IV. Manage genetic integrity and augment or restore populations

IV.A. Augment or restore populations as needed

IV.A.1.c. Implement plan. Superseded by Revised Integrated Stocking Plan (2015), see General IV.B.2.

Colorado River Action Plan: Main stem

IV. Manage genetic integrity and augment or restore populations

IV.A. Augment or restore populations as needed.

IV.A.5.b. Implement bonytail integrated stocking plan. Superseded by Revised Integrated Stocking Plan (2015), see General IV.B.2.

Accomplishment of FY 2023 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

BT Stocking

A total of 5,423 BT averaging 295.9 mm TL were successfully stocked by Mumma in 2023 (Table 1).

On March 28, 2023, Mumma stocked 512 BT into Salt Creek, approximately 4 miles southwest of the town of Mack, Colorado.

- BT were Passive Integrated Transponder (PIT) tagged on March 21, 2023, prior to stocking.
- Recorded discharge for this stocking using *waterdata.usgs.gov* was ~ 10.1 cubic feet per second (cfs) measured at gauge USGS 09163492 SALT CREEK NEAR MOUTH NEAR MACK, CO at 14:30, the approximate time of stocking.
- The receiving water temperature for the Salt Creek BT stocking was 7.2 degrees Celsius with a pH 8.2. Hatchery transport water temperature and pH prior to stocking were 7.8 degrees Celsius and 8.7, respectively. Due to slight differences in temperature and pH (<5 degrees Celsius and <1 pH unit), BT were not acclimated for temperature and pH. BT appeared unstressed upon release into the resource.
- Due to road conditions and the railway, BT were transferred to 5 gallon buckets for release into the creek.
- CPW's annual BT obligations are met through stocking in the mainstem Colorado and Yampa Rivers (Green River basin). Additional fish are stocked in Salt Creek above the 29-D SOW.

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On August 1, 2023, Mumma stocked 2,403 BT into Yampa River #1 at the Deerlodge Park boat launch.

- BT were PIT tagged on July 25 & 26, 2023, prior to stocking.
- Recorded discharge for this stocking using *waterdata.usgs.gov* was ~ 340 cubic feet per second (cfs) measured at USGS 09260050 YAMPA RIVER AT DEERLODGE PARK, CO at 16:20, the approximate time of stocking.
- The receiving water temperature for the Yampa River #1 BT stocking was 27.2 degrees Celsius with a pH 8.4. Hatchery transport water temperature and pH prior to stocking was 19.4 degrees Celsius and 8.5 respectively. BT were acclimated for temperature and pH for approximately 60 minutes prior to release. BT appeared unstressed upon release into the resource.

On August 29, 2023, Mumma stocked 2,508 BT into Colorado River #2 at Jet Boat Colorado boat ramp by the town of Debeque, Colorado.

- BT were PIT tagged on August 22 & 23, 2023 prior to stocking.
- Recorded discharge for this stocking using *waterdata.usgs.gov* was ~ 2,775 cubic feet per second (cfs) measured at USGS 09095500 COLORADO RIVER NEAR CAMEO, CO or 3,975 cubic feet per second (cfs) measured at USGS 09163500 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE at 12:30, the approximate time of stocking.
- The receiving water temperature for the Colorado River #2 BT stocking was 16.7 degrees Celsius with a pH 7.9. Hatchery transport water temperature and pH prior to stocking was 18.3 degrees Celsius and 8.2 respectively. Due to slight differences in temperature and pH (<5 degrees Celsius and <1 pH unit), BT were not acclimated for temperature and pH. BT appeared unstressed upon release into the resource.

BT Rearing and Health

- BT are received from the Wahweap State Fish Hatchery located in Big Water, UT and are grown out to size in four (4) outdoor 0.10 surface acre PE lined-ponds in a 3 to 5 year period. During this time juvenile BT are fed a Custom Trout #2 diet, progressing to a Custom Trout 1/16" diet, and finished off with an extruded 1/8" Trout diet from Rangen, Inc.
- The BT are subject to seasonal avian predation, primarily night herons and assorted raptors. See Bird Depredation Pond Enclosures construction project below.
- All BT to be released are harvested from the ponds and held in two 12 ft. diameter flowing, circular tanks for approximately 1 to 3 weeks prior to stocking.
- Sixty (60) BT were collected on August 21, 2023 and tested for viral hemorrhagic septicemia virus (VHSV) in compliance with Colorado Parks and Wildlife's (CPW) regulatory annual fish health inspection (FHI). Results showed no viruses detected.
- All BT received two (2) consecutive daily 8-10 hour static-bath anti-platyhelminthes *Praziquantel* treatments prior to stocking.
- Mumma currently provides four (4) 0.10 surface acre PE lined-ponds to the recovery of BT. BT remaining on station can be found in Table 2.

Facility Maintenance and Construction

- **Bird Depredation Pond Enclosures:** In 2023 CPW accepted a bid for the installation of chain link fencing and bird netting at Mumma. The project consists of two sections. The

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"North Ponds Fence" includes approximately 1,100 LF of 8' high chain link fence with a 20' wide double gate, two 4' wide walk gates, and 15' high bird netting support posts. The "South Ponds Fence" includes approximately 575 LF of 8' high chain link fence with two 10' wide gates, and 15' high bird netting support posts.

- The winning bid came in at \$92,304.27. Construction of pond enclosures is still in progress. The funding for this project was provided by CPW's Species Conservation Trust Fund.

Shortcomings

- BT are stocked in Salt Creek before irrigation season to allow acclimation in calm, low flow conditions prior to the onset of irrigation flows on April 1. Due to the timing, RISP recommended temperatures cannot be met.
- In 2023, the hydrograph dropped rapidly post run off and temperatures increased on the Yampa River at Deerlodge Park as a result. On August 1, 2023 temperatures fluctuated between 21.1 C and 27.4 C. While temperatures exceeded the RISP recommendations, average daily temperatures remained well within the guidelines.
- Due to excess fish received in some years, some BT have remained on the unit beyond the recommended grow out period. Additionally, higher densities in rearing ponds have slowed growth in some ponds, requiring additional time to attain 250 mm total length.

Additional noteworthy observations: None

Recommendations:

- Continue to refine culture techniques and dietary requirements of BT at Mumma to meet CPW's obligation to produce BT in numbers and sizes sufficient to help meet the annual stocking plan of the UCREFRP in the Upper Colorado River Basin.
- Re-evaluate size, number, and culture duration targets to better match Mumma's conditions and facility capacities. Work with the UCREFP Propagation Coordinator and Work Group to determine targets and appropriate modifications to RISP.
- Stock 2018 year class in 2024. Work with Propagation Work Group and Coordinator to determine appropriate stocking locations and attain additional help for PIT tagging and stocking.
- Receive fry or young-of-year BT from Southwestern Native Aquatic Resources and Recovery Center (Dexter, NM) or other UCREFRP approved source.
- Revise designated stocking locations with Propagation Coordinator to reduce transport time and stress on BT.
- Continue annual fish health inspections of BT for the presence of VHSV at Mumma.
- Continue with anti-platyhelminthes *Praziquantel* treatments of BT prior to all stockings.
- Continue PIT tagging of BT at Mumma prior to all stocking.
- As conditions allow, stock bonytail within RISP guidelines for temperatures or modified

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guidelines as determined by the Propagation Work Group.

- Expose BT to increased flow rate in circular tanks prior to stocking to promote acclimation to lotic conditions.
- Attempt to match transport water temperature and pH to receiving water conditions when stocking.

Project Status:

The project remains on track and ongoing.

FY2023 Budget Status

Funds Provided: \$87,711

Funds Expended: \$87,711

Difference: \$0.00

Percent of the FY 2023 work completed, and projected costs to complete: 100%

Recovery Program funds spent for publication charges: \$0.00

Status of Data Submission

PIT tag and additional data from all three BT stocking events listed in this report was submitted to the UCREFRP Database Coordinator, Christopher Michaud for entry into the STReAMS database on September 23, 2023.

Signed:

Theodore J. Smith

Principal Investigator

Date: November 21, 2023

Table 1. Details of stocking events for bonytail reared at Mumma, 2023.

Date	Location	Year class	Number	Fish/lb.	Mean TL (mm)	Min TL (mm)	Max TL (mm)
03/28/2023	Salt Creek, Mack	2018	512	2.05	298.5	242	446
08/01/2023	Yampa River, Deerlodge Park	2018	2,403	2.14	294.2	200	442
08/29/2023	Colorado River, Debeque	2018	2,508	2.13	294.9	200	452
Total			5,423	2.11	295.9	214	447

Table 2. Bonytail remaining on station at Mumma as of November 21, 2023.

Year class	Number	Impoundment
2022	17,185	POND 1
n/a	Empty	POND 2
2018	7,082	POND 3
2018	3,320	POND 4
Total	27,587	