

I. Project Title: **Propagation Facilities in the Grand Valley (Ouray National Fish Hatchery - Grand Valley Unit) for Captive Rearing of Endangered Fishes for the Upper Colorado River Basin.**

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

Project/Grant Period: Start date (Mo/Day/Yr): 10/1/2014
End date (Mo/Day/Yr): 9/30/2019
Reporting period end date (Mo/Day/Yr): 9/30/2018
Is this the final report? Yes _____ No X

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IV. Abstract:

Ouray National Fish Hatchery - Grand Valley Unit (Ouray NFH-GVU) consists of several facilities near Grand Junction, CO. These facilities include the Horsethief Canyon Native Fish Facility (HCNFF), the 24 Road Hatchery building, and three other "lease-free" grow-out ponds.

Ouray NFH-GVU produces and rears razorback sucker (annual stocking target = 6,000 fish \geq 350 mm TL) for stocking into the Colorado and Gunnison rivers. In addition, Ouray NFH-GVU rears bonytail obtained as larvae from the USFWS's Southwest Native Aquatic Resources and Recovery Center (SNARRC) in Dexter, NM (annual stocking target = 10,000 fish \geq 250 mm TL), for stocking into the Colorado River. All stockings of these two endangered fishes are in accordance with the approved Integrated Stocking Plan (ISP).

Wild humpback chub from the Black Rocks area of the Colorado River continue to be held at the HCNFF ponds as a refugia population.

V. Study Schedule: 1996 to end of Recovery Program

VI. Relationship to RIPRAP:

General Recovery Program Support Action Plan

IV.A. Genetic Management

IV.A.1. Augment razorback sucker

IV.A.4. Secure and manage genetic stocks in refugia

IV.C. Operate and maintain facilities

VII. Accomplishment of FY 2018 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Ouray NFH-GVU routinely participates in annual inspections to insure our facilities, as well as the fish we grow, are free from problematic diseases and Aquatic Invasive Species (AIS). On 23 March 2018, personnel from the USFWS's Bozeman Fish Health Center conducted our annual Fish Health Inspection. The results were negative for any problematic/reportable fish health diseases. On 24 July 2018, personnel from the USFWS's Hotchkiss National Fish Hatchery conducted our annual AIS inspection. This was a walk-through, hands-on, visual inspection of both our hatchery building and ponds. Water/plankton samples were also taken during the inspection and sent to Montana Fish, Wildlife & Parks in Helena, MT to be tested for the presence or absence of zebra and/or quagga mussel veligers. The results of the walk-through inspection were negative for any problematic/reportable AIS. The water/plankton samples were processed by Montana Fish, Wildlife & Parks and on 1 August 2018, our facility was declared negative for the presence of mussel veligers.

A Health Condition Profile (HCP) workshop was conducted at our office in Grand Junction on 29 November 2017. This class had participants from the states of Colorado, Nevada, Utah, BoR, USGS, and the USFWS. On 31 October 2018, Ouray NFH-GVU staff conducted our first HCP necropsies on both razorback sucker and bonytail (20 fish per species) and submitted our HCP results online to the Utah Division of Wildlife Resource's AuSum Program.

Ouray NFH-GVU staff annually provide a wide variety of public education and outreach opportunities, including providing tours of the 24 Road Hatchery building, partnering with Colorado Parks and Wildlife (CPW) to provide endangered razorback sucker for their Aquarium in the Classroom Program (which allows local elementary school students to raise endangered fish in their classroom, tagging and stocking them into the river at the end of the school year), attending local water festivals, providing fish for outreach at the Heritage Days, Palisade Peach Festival, Home and Garden shows, Farmer's Markets, etc.

Staff also regularly participate in outreach via local newspaper, television, and radio interviews. All of these activities are geared toward informing the general public about endangered fish recovery issues and trying to build an advocacy base for endangered fish recovery among the local population. Outreach efforts reach several thousand people each year, ranging from elementary school through college age students, families, Cub Scout troops, professional NGO (e.g., Nature Conservancy) and government agency personnel, etc.

No major maintenance or repair projects were performed at the hatchery this year. Routine maintenance activities, such as the replacement of two small power transformers, were performed as necessary throughout the year.

Razorback Sucker

In March 2018, approximately 7,300 age-1 razorback sucker were being held indoors at the 24 Road Hatchery building. These fish represented young from 15 different paired matings of broodstock performed in April 2017. From early April to mid-May 2018, approximately 5,250 of these age-1 razorback sucker were stocked into the grow-out ponds at HCNFF. Ponds were stocked with a mixture of fish from several different family lots. Equal numbers from each represented family lot were stocked into a total of six ponds. These fish were PIT tagged prior to being stocked into grow-out ponds to help reduce stress later in the year when they would be harvested for stocking. The remaining age-1 razorback sucker (approximately 2,050 fish) continued to be held at the 24 Road Hatchery building due to the unavailability of grow-out ponds.

In April 2018, razorback sucker broodstock held at HCNFF were spawned and the eggs were transferred to the 24 Road Hatchery building. Hatching rates for razorback sucker eggs were excellent, with approximately 88% of all eggs successfully hatching into fry. The hatchery is currently holding 12,000 135 mm TL razorback sucker.

In 2018, a total of 7,423 razorback sucker were harvested and stocked. These fish were stocked at multiple locations – 2,451 were stocked from HCNFF into the Colorado River near Rifle, 70 were stocked from CDOT Pond into the Colorado River near DeBeque, 1,059 from HCNFF and another 1,006 from the 24 Road Hatchery were stocked into the Colorado River in Grand Junction, and 36 were stocked from Beswick's Pond into the Colorado River in Grand Junction. In the Gunnison River, 1,773 from HCNFF and another 1,027 from 24 Road Hatchery were stocked near Delta and 1 additional fish was stocked from Butch Craig Pond into the Gunnison River at Whitewater, CO. The 7,423 razorback sucker stocked in 2018 represented 123.72% of our annual target number (n = 6,000). We observed an approximately 95% return rate of juvenile razorback sucker from grow-out ponds to harvest and stocking. Any culled "excess" fish were stocked into our "lease-free" grow-out ponds for later opportunistic harvest and stocking.

Our three “lease-free” grow-out ponds (CDOT, Beswick’s, and Butch Craig ponds) will continue to be used as necessary in future years to provide redundancy and as we continue to evaluate management options to improve the survival and growth of razorback suckers for augmentation.

Bonytail

In spring 2017 approximately 15,000 larval bonytail were received from SNARRC. These fish were stocked into grow-out ponds at HCNFF. In November 2017, these bonytail were harvested from HCNFF and brought into the 24 Road Hatchery to overwinter. In early to mid-April 2018, these bonytail were transferred to HCNFF to maximize growth until being stocked in summer 2018. In 2018, a total of 11,360 bonytail were harvested and stocked. These fish were stocked at multiple locations in the Colorado River – 2,832 were stocked from HCNFF into the Colorado River near Rifle, 8,527 were stocked from HCNFF into the Colorado River in Grand Junction, and 1 was stocked from Beswick’s Pond into the Colorado River in Grand Junction. The 11,360 bonytail stocked in 2018 represented 113.60% of our annual target number (n = 10,000).

In spring 2018 approximately 15,000 larval bonytail were received from SNARRC. These fish were stocked into two ponds at HCNFF. In October/November 2018, these bonytail were harvested from HCNFF and brought into the 24 Road Hatchery to overwinter. They will be stocked back into grow-out ponds at HCNFF in spring 2019, where they will be held until being stocked at various locations in the Colorado and Gunnison rivers.

We typically observe a <20% loss of larval bonytail to stockable age-1 fish, with the greatest losses typically occurring immediately after larval fish are received via FedEx from SNARRC and after stocking into grow-out ponds due to avian predation. Any culled “excess” fish were stocked into our “lease-free” grow-out ponds for later opportunistic harvest and stocking.

Humpback Chub

Wild adult humpback chub that were collected from the Black Rocks area of the Colorado River continue to be held as a refugia population at the HCNFF ponds. Seventeen humpback chub were collected from 2014 and 2015 at Black Rocks. In October 2017, another 10 humpback chub were collected from Black Rocks and brought into captivity. When this pond was drained and these fish were examined on 30 October 2018, 27 of the original 28 adult humpback chub were accounted for. Sometime during 2019, we lost one adult humpback chub. We intend to bring an additional 5-10 large juvenile or small adult humpback chub during fall 2019 sampling.

In 2018, the adult humpback chub being held at HCNFF once again spawned voluntarily. Several hundred age-0 humpback chub could be seen schooling in this pond through

about mid-summer of 2018. However, 38 age-1 Colorado pikeminnow obtained from SNARRC in early spring 2018 had also been added to this refugia pond to act as a biological control upon these volunteer-spawned fish (following Diver et al. 2015). When the pond was drained on 30 October 2018, only 18 age-0 humpback chub remained (compared to 1,132 in fall 2017). These 18 age-0 fish were removed from the pond and taken to the educational aquarium in the 24 Road hatchery building. The 38 age-1 Colorado pikeminnow were also removed from the humpback chub refugia pond and will be reared through 2019 in a separate pond until they can be PIT-tagged and stocked into the San Juan River.

David Ward of the USGS’s Grand Canyon Research and Monitoring Center (GCMRC) has communicated a continuing need for up to several thousand age-0 humpback chub per year for experimental purposes. For now, we plan to let volunteer-spawned humpback chub produced in 2019 remain in this refugia pond, without implementing any form of biological control. All volunteer-spawned age-0 humpback chub surviving in late October 2019 will be given to David Ward, when the pond is drained for our annual census of these refugia fish.

2018 Stocking Summary

A total of 7,423 razorback sucker (123.72% of the target stocking number) were stocked into the Colorado and Gunnison rivers in 2018. Of these, 7,316 were from the HCNFF ponds, with another 107 coming from three remotely-located grow-out ponds. The mean TL for all razorback sucker stocked in 2018 was 365 mm (target stocking size was 350 mm TL). Numbers of fish stocked in each location in 2018 were as follows:

<u>Location</u>	<u>Number Stocked</u>
Upper Colorado near Rifle (from HCNFF) Multiple stocking events in September 2018 at RM 240.7	2,451
Upper Colorado near DeBeque (from CDOT Pond) Multiple stocking events in 2018 at RM 204.5	70
Colorado River in Grand Junction (from HCNFF) Multiple stocking events in Oct-Nov of 2017 and May-Sept of 2017 between RM 157.1 and 183.6	1,059
Colorado River in Grand Junction (from 24 Road Hatchery) One stocking event on Sept 20, 2018 at RM 177.4	1,006
Colorado River in Grand Junction (from Beswick’s Pond) Multiple stocking events in 2018 at RM 174.9	36
Gunnison River in Delta (from HCNFF) Two stocking events in September 2018 at RM 57.1	1,773
Gunnison River in Delta (from 24 Road hatchery) One stocking event on Sept 19, 2018 at RM 57.1	1,027
Gunnison River in Whitewater (from Butch Craig Pond) One stocking event on June 7, 2018 at RM 12.7	1

2018 stocking totals for razorback sucker 7,423

A total of 11,360 bonytail (113.60% of the target stocking number) were stocked into the Colorado River in 2018. Of these, 11,359 were from the HCNFF ponds and 1 was from Beswick's Pond. The mean TL for all bonytail stocked in 2018 was 244 mm (target stocking size was 250 mm TL). Numbers of fish stocked in each location in 2018 were as follows:

<u>Location</u>	<u>Number Stocked</u>
Upper Colorado near Rifle (from HCNFF) Multiple stocking events in June 2018 at RM 240.7	2,832
Colorado River in Grand Junction (from Beswick's Pond) One stocking event on May 10, 2018 at RM 174.9	1
Colorado River in Grand Junction (from HCNFF) Multiple stocking events in 2018 between RM 157.1 and 183.6	<u>8,527</u>
2018 stocking totals for bonytail	11,360

VIII. Additional noteworthy observations: None

IX. Recommendations:

- 1) Continue management and operation of Ouray NFH – GVU facilities to serve as a primary refuge facility for endangered fishes of the Upper Colorado Basin.
- 2) Continue production, grow-out, and stocking of razorback sucker and bonytail (and other native, endangered fish species as appropriate) to meet stocking goals set forth in approved stocking plans by the Upper Colorado River Endangered Fish Recovery Program (UCREFRP).

X. Project Status: Project is on track and ongoing.

XI. FY 2018 Budget Status

- A. Funds Provided: \$574,141
 - a. \$530,281 to Ouray NFH-GVU
 - b. \$43,860 to Bureau of Reclamation (to pay gas, electricity, phone)
- B. Funds Expended: \$574,141
- C. Difference: \$0
- D. Percent of the FY 2018 work completed, and projected costs to complete: 100%
- E. Recovery Program funds spent for publication charges: \$0

XII. Status of Data Submission (Where applicable): All PIT tag data were submitted to the UCREFRP database manager in October 2018 under Projects 29a and 126ab.

XIII. Signed: Thad Bingham, Mike Gross, Dale Ryden & Brian Scheer 12/10/2018
Principal Investigator(s) Date

LITERATURE CITED

Diver, T., C. Sykes, and W. Wilson. 2015. Genetic Monitoring and Biological Control of Recruitment in Bonytail Rearing Ponds. U.S. Fish and Wildlife Service, Dexter, New Mexico. 37 pp. + appendices.