

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2021 ANNUAL REPORT

PROJECT: 29a

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.

Bureau of Reclamation Agreement Number:

R20PG00024

Project/Grant Period:

Start date: 10/01/2020

End date: 09/30/2024

Reporting period end date: 09/30/2021

Is this the final report? Yes _____ No X

Principal Investigator:

Brian Scheer, Deputy Project Leader

Dale Ryden, Project Leader

Michael Gross, Biological Science Technician

Haden VanWinkle, Biological Science Technician

Ouray National Fish Hatchery - Grand Valley Unit

1149 24 Road

Grand Junction, Colorado 81505

Phone: (970) 245-9236

Fax: (970) 628-7217

Email: brian_scheer@fws.gov, dale_ryden@fws.gov, michael_gross@fws.gov,

haden_vanwinkle@fws.gov

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 (CDOT Pond, Beswick's Pond, and Butch Craig Pond).

Ouray NFH-GVU produces and rears razorback sucker 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, for stocking into the Colorado River. All stockings of these two endangered fishes are in accordance with the approved Integrated Stocking Plan (ISP).

A small number of wild humpback chub from the Black Rocks area of the Colorado River were being held at the HCNFF ponds in refugia.

Study Schedule:

1996-Ongoing

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Relationship to RIPRAP:

General Recovery Program Support Action Plan: 2021 RIPRAP

IV. Manage genetic integrity and augment or restore populations (stocking endangered fishes)

IV.A. Genetics Management

IV.A.2. Develop and implement Genetics Management Plan for all species and update as Needed. Czapla 1999

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

IV.A.4.a. Razorback sucker

IV.A.4.a.(2) Upper Colorado River

IV.A.4.b. Bonytail

IV.A.4.c. Humpback chub

IV.B. Conduct annual fish propagation activities

IV.C. Operate and maintain facilities

IV.C.2. Ouray NFH: Grand Valley Unit

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

Facility Inspections

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). Due to travel restrictions necessitated by COVID, in-person inspections by staff from other facilities were cancelled. Instead, on 12 April 2021, personnel from Ouray NFH-GVU collected samples and sent them to the USFWS's Bozeman Fish Health Center (Bozeman FHC) for analysis for our annual Fish Health Inspection. The results were negative for any problematic/reportable fish health diseases.

Likewise, the annual Aquatic Invasive Species (AIS) inspection (normally conducted by personnel from Hotchkiss NFH) was also cancelled due to COVID. Instead, on 5 August 2021, Ouray NFH-GVU personnel gathered the appropriate water and plankton samples and sent them to the Montana Fish, Wildlife & Parks in Helena, MT to be tested for the presence or absence of zebra and/or quagga mussel veligers. A walk-through, hands-on, visual inspection of both our hatchery building and ponds were also conducted by Ouray NFH-GVU personnel. The results of the walk-through inspection were negative for any problematic or reportable AIS (i.e., zebra mussels, quagga mussels or Asian clams). The water and plankton samples were processed by Montana Fish, Wildlife & Parks and on 6 August 2021 and our facility was declared negative for the presence of mussel veligers.

Health Condition Profile (HCP) necropsies were performed for both bonytail and razorback sucker (20 fish per species) on 3 August (for bonytail) and 21 September (for razorback sucker) 2021 by Ouray NFH-GVU staff and results were submitted online to the Utah Division of Wildlife Resource's AuSum Program.

Education and Public Outreach Activities

Though the activity is unfunded, Ouray NFH-GVU staff annually provide a wide variety of public education and outreach opportunities. All of these activities are geared toward informing the general

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

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), government agency personnel, etc. They include 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. Ouray NFH-GVU staff also participate in outreach via local newspaper, television, and radio interviews. In addition, our staff annually either performs endangered fish related lectures at or provides panel members for symposiums at Colorado Mesa University.

These education and outreach activities were greatly curtailed in FY 2021, due to COVID. Despite this however, Ouray NFH-GVU staff were still able to work on several outreach activities in FY 2021. These included filming a virtual hatchery tour that was then presented online to several high school and college science classes, providing razorback sucker for the Palisade Heritage Days exhibit, and contributing to a Colorado Water Trust-produced YouTube video:

15 Mile Reach - A New Model to Protect the Colorado River

<https://www.youtube.com/watch?v=-YzeT-Ze4xM>

Additionally, Ouray NFH-GVU staff gave professional presentations at the 41st Annual Researcher's Meeting of the Upper Colorado River Endangered Fish Recovery Program and San Juan River Basin Recovery Implementation Program on 12 January 2021, as well as at Western Division AFS meeting on 11 May 2021.

During FY 2021, Ouray NFH-GVU staff continued to partner with and support the Palisade High School (PHS) Fish Hatchery. From October 2020 through May 2021 PHS staff and students reared the first batch of 225 razorback sucker that had been transferred from Ouray NFH-GVU to the PHS Fish Hatchery on 20 August 2020. Ouray NFH-GVU staff helped give PHS staff and students aquaculture lessons in hatchery O&M, water quality, fish handling, feeding, sample counting, and PIT-tagging, applying for and administering Investigational New Animal Drug (INAD) treatments (to use non-MS-222 based fish tranquilizers), perform fish health inspections, and harvesting, transporting, tempering, and stocking fish into the wild. In May 2021, 225 razorback sucker (mean TL = 224 mm; mean WT = 181 g) were stocked back into the Colorado River in Palisade High School, while a crowd of approximately 150 attendees looked on. The stocking generated numerous television reports, and newspaper and internet blog articles. Patrick Steele from PHS was awarded the USFWS Regional Director's Partnership award for his part in helping make the Palisade High School Fish Hatchery a success. On 30 September 2021, a new batch of 250 juvenile razorback sucker were delivered to the Palisade High School Fish Hatchery for the 2021-2022 school year.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Hatchery Maintenance Activities

In FY-2021, Ouray NFH-GVU staff performed several repairs of broken water lines, water control valves and air distribution lines at the HCNFF ponds. Automatic fish feeders were also installed on the HCNFF ponds, to more reliably distribute feed (temporally and longitudinally) across the ponds.

There are a number of ongoing and/or upcoming maintenance-related issues at Ouray NFH-GVU that will need to be addressed in the coming years. Some of these could potentially have large price tags associated with them, including:

1. There has been some subsidence under the north side floor of the 24 Road hatchery building (i.e., Hatchery # 2). We are in the process of getting the exact extent of this problem identified, so we can pursue getting foundation repair work underway.
2. The water valve operators that were originally installed on the HCNFF ponds were not the proper model (i.e., they were not engineered to be buried and then exposed to ground water moisture). As a result, we have been replacing these valve operators with a different model (that can be buried and then exposed to ground moisture) as they have been breaking, which is happening with increasing frequency each year. However, each time a water valve operator ceases to function, it costs a delay of days to weeks to dig it up and repair it, plus the cost associated with the part, backhoe, labor etc.
3. Since 2013, there has been a considerable build-up of iron in the pipes leading from the underground infiltration gallery to the HCNFF grow-out ponds. This has restricted the ability to deliver water to the HCNFF ponds. We will need to come up with a method for accessing and cleaning (jetting?) out these water supply lines, including possible replacement of water exchange hydrants for each pond. This maintenance issue could prove to be very expensive.
4. After a power brown-out experienced in fall 2021 (from a power delivery line located across the river from our facility), one of the two pumps in the underground infiltration gallery has ceased to function. Luckily, this happened as we were harvesting/emptying the ponds for the fall/winter season. We are in the process of pursuing a solution (hopefully, this is just a reboot/rest issue).
5. The two pumps in the underground infiltration gallery have been in place and running 24/7/365 for almost ten years now. At some point in the not too distant future, we will need to pull them off line, hire a large crane to remove them from the infiltration gallery and then have them rebuilt/refurbished and then lifted back into place. An added difficulty is that the road from the ponds to the pump housing area of the infiltration galley was removed/destroyed (during reclamation efforts) after construction at the HCNFF was finished in 2013. An access road will need to be rebuilt to get the crane and other necessary equipment down to the river's edge as well. This maintenance issue could prove to be very expensive.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Razorback Sucker

In March 2021, approximately 12,267 age-1 razorback sucker were being held indoors at the 24 Road Hatchery building. These fish represented young from 10 different paired matings of broodstock performed in April 2020. From early April to mid-May 2021, approximately 7,000 of these age-1 razorback sucker were stocked into the grow-out ponds at HCNFF. Ponds were stocked with a mixture of fish from 10 different family lots. Equal numbers from each represented family lot were stocked into a total of 8 ponds. These fish were all PIT tagged in the 24 Road Hatchery building several weeks prior to being stocked into grow-out ponds. The remaining age-1 razorback sucker (approximately 5,267 fish) continued to be held at the 24 Road Hatchery building until bonytail were harvested from 6 ponds at HCNFF (in mid-July 2020). Those 6 ponds were then available to be stocked with the razorback sucker remaining at 24 Road Hatchery.

Despite the difficulties presented by COVID, in April 2021, Ouray NFH-GVU staff were able to once again successfully spawn razorback sucker broodstock held at HCNFF. The eggs produced from this spawning effort were transferred to the 24 Road Hatchery building. In 2021, approximately 63% of all razorback sucker eggs successfully hatched into fry. The hatchery is currently holding 14,800 razorback sucker. This includes 2,800 razorback sucker that will be stocked into Lake Powell in winter/spring 2022 for a separate study and 12,000 razorback sucker for UCREFRP production purposes.

We observed an approximately 93% return rate of juvenile razorback sucker from grow-out ponds to harvest and stocking. Any “excess” razorback sucker culled from family lots as fish grew 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 sucker for augmentation.

The Ouray NFH-GVU continued to supply young-of-year razorback sucker that are excess to fulfilling our production needs to David Ward of the USGS’s Grand Canyon Monitoring and Research Center (GCMRC). On 26 October 2021, Mr. Ward picked up approximately 15,000 excess 2021 year-class razorback sucker, averaging 40-70mm TL. These excess razorback sucker will be used to study the effects of prey size and water turbidity on predation by large nonnative predatory fish species.

Bonytail

In spring 2020 approximately 15,000 larval bonytail were received from SNARRC. These fish were stocked into grow-out ponds at HCNFF. In October 2020, these bonytail were harvested from HCNFF and brought into the 24 Road Hatchery to overwinter. In early to mid-April 2021, these bonytail were transferred to HCNFF to maximize growth until being stocked in summer 2021. These fish were all PIT tagged in the 24 Road Hatchery building, several weeks prior to being stocked into the grow-out ponds.

For the first time since our facility began rearing bonytail (and following approval from the Upper Colorado River Endangered Fish Recovery Program’s Biology Committee), 5,000 bonytail (2020 year-class) were held overwinter in grow-out ponds at HCNFF. The intent was to test whether rearing

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

bonytail in a more natural environment year-round would result in better long-term survival rates (post-stocking) than growing them to as large a size as possible, as quickly as possible (by moving them between ponds and the hatchery), as has been done in the past. With this experimental approach being adopted for winter 2020-2021, the target number of bonytail to be stocked from our facility for FY-2021 was adjusted to 8,000 fish (> 250 mm TL). Any surviving fish from the 5,000 being overwintered in the grow-out ponds that we were able to stock in FY-2021 would be considered as being “in addition to” that adjusted stocking target number. Unfortunately, these 5,000 bonytail experienced poor overwinter survival and much reduced growth rates, making the survivors too small to stock at target sizes in summer 2021. The surviving 900 fish (< 250 mm total length) from this lot were harvested and stocked into Beswick’s Pond, one of our “lease-free” grow-out ponds.

In spring 2021 approximately 15,000 larval bonytail were received from SNARRC. These fish were stocked into two ponds at HCNFF. In October 2021, 12,300 bonytail were harvested from HCNFF and brought into the 24 Road Hatchery to be grown overwinter. In spring 2022, the 12,300 bonytail in the 24 Road Hatchery will be stocked back into grow-out ponds at HCNFF, where they will be reared until being stocked in summer 2022 at various locations in the Colorado River.

We typically observe a < 10% 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 “excess” bonytail culled from family lots as fish grew were stocked into our “lease-free” grow-out ponds for later opportunistic harvest and stocking.

Humpback Chub

As of early spring 2021, Ouray NFH-GVU still had eight wild humpback chub in captivity. With the recommendations put forth in the Reintroducing Humpback Chub in Dinosaur National Monument white paper (Valdez et al. 2021), it became apparent that these eight humpback chub from the Black Rocks portion of the Colorado River were not a high priority for future reintroduction efforts. Therefore, to prevent further loss among these fish, they were repatriated to the wild in March 2021. Thus, Ouray NFH-GVU no longer has any humpback chub on station.

2021 Stocking Summary

Razorback sucker: A total of 6,761 razorback sucker (108.93% of the target stocking number {n = 6,000}) were stocked into the Colorado and Gunnison rivers in 2021. Of these, 6,536 were from the HCNFF grow-out ponds. The other 225 were from the 24 Road Hatchery building and had been provided to the Palisade High School Fish Hatchery for use in their facility. Those 225 fish were stocked directly into the river by PHS staff and students at the Riverbend Park boat launch in May 2021. This stocking happened before the excessively low instream flows experienced in the 15 Mile reach throughout much of the 2021 water year. All other razorback sucker stocked in 2021 were stocked either far upstream of Grand Junction, CO (i.e., in Rifle, CO) or downstream of the 15 Mile Reach. Excessively low in-river flows in the 15 Mile Reach throughout the latter portion of the 2021 water year (i.e., after June) made stocking razorback sucker in the 15 Mile Reach in 2021 unsuitable. All razorback sucker were stocked during daylight hours. The mean TL for the 6,536 razorback sucker stocked from HCNFF in 2021 was 377 mm. The mean TL for the 225 razorback sucker stocked from Palisade High

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

School Fish hatchery in 2021 was 224 mm. Numbers of fish stocked in each location in 2021 were as follows:

River	Location Name	River Mile	Number Stocked	Month Stocked	Notes
Colorado	Fruita, CO	157.1	88	April 2021	Old broodstock from HCNFF
Colorado	Palisade, CO	183.6	225	May 2021	Palisade H.S. fish
Colorado	Rifle, CO	240.7	1,723	September 2021	HCNFF fish
Colorado	Grand Jct., CO	166.7	1,555	September 2021	HCNFF fish
Colorado	Fruita, CO	157.1	1,412	September 2021	HCNFF fish
Gunnison	Delta, CO	57.1	1,758	September 2021	HCNFF Fish

Bonytail: A total of 8,043 bonytail (100.54% of the adjusted target stocking number {n = 8,000}) were stocked into the Colorado River in 2021. All of these were from the HCNFF grow-out ponds. The mean TL for all bonytail stocked in 2021 was 246 mm, which was slightly smaller than the target stocking size identified in the ISP (≥ 250 mm TL). The UCREFRP’s Biology Committee had been informed that the total numbers (see explanation above) and overall size of the bonytail being stocked by our facility in 2021 might both be reduced in comparison to the “normal” production goals, identified in the ISP. The reduced size is, at least in part, due to our no longer removing smaller bonytail via size grading processes in the hatchery. This practice was part of the normal hatchery routine in past years, when we were trying very hard to meet minimum size requirements, dictated by the ISP. However, we’ve gone away from size grading to avoid artificially selecting in favor of female bonytail, which grow faster than male bonytail, especially in the first 2-3 years of life. Numbers of fish stocked in each location in 2021 were as follows:

River	Location Name	River Mile	Number Stocked	Month Stocked	Notes
Colorado	Fruita, CO	157.1	1,371	6 July 2021	Daytime stocking
Colorado	Grand Jct. CO	166.7	1,376	7 July 2021	Daytime stocking
Colorado	Rifle, CO	240.7	1,366	8 July 2021	Daytime stocking
Colorado	Rifle, CO	240.7	1,337	13 July 2021	Daytime stocking
Colorado	Fruita, CO	157.1	1,293	14 July 2021	Evening stocking
Colorado	Fruita, CO	157.1	1,300	15 July 2021	Evening stocking

Like most razorback sucker, bonytail were stocked after precipitous in-river drops in flow had occurred in 2021. Thus, stockings were made in areas that would avoid the 15 Mile Reach in 2021, which had become unsuitable for stocking fish by July 2021. In FY-2021, paired daytime/evening stockings of bonytail were performed at one stocking site (RM 157.1) to see if any post-stocking survival difference could be detected between fish being stocked at different times of the day.

Additional noteworthy observations:

None

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Recommendations:

1. Continue management and operation of Ouray NFH – GUV facilities to serve as a primary refuge facility for razorback sucker and bonytail.
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 UCREFRP.
3. Address as many of the maintenance-related issues (identified above) as possible in FY-2022. At the latest, we feel that the issue of getting the infiltration gallery pumps pulled and serviced should be addressed in winter 2022-2023. Some of these maintenance-related activities may require financial and/or engineering assistance from the UCREFRP and/or BoR to accomplish (see above).
4. Continue to work with the UCREFRP to determine if more ponds need to be constructed (or current ponds re-purposed) at HCNEF to prepare to take Colorado pikeminnow on station in upcoming years.
5. Pursue wish-list items for the 24 Road hatchery building, including:
 - a. Constructing an isolation/quarantine room that is on a separate water system from the current hatchery building.
 - b. Constructing a decontamination pit at the 24 Road hatchery building for decontaminating trucks, trailers, and equipment to prevent the spread of Aquatic Invasive Species (AIS).

Project Status:

Project is on track and ongoing.

FY 2021 Budget Status

Funds Provided: \$551,345 (plus \$71,400 paid directly by Bureau of Reclamation for utilities)

Funds Expended: \$551,345 (plus \$71,400 paid directly by Bureau of Reclamation for utilities)

Difference: \$0

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

Recovery Program funds spent for publication charges: \$0

Status of Data Submission

All PIT tag data will be submitted to the UCREFRP database manager and STReAMS database system in October 2021 for Project 29a

Literature Cited:

Valdez, R.A., M. Trammell, T. Jones, K. McAbee, and D. Speas. 2021. Reintroducing humpback chub in Dinosaur National Monument: A White Paper that explores the feasibility and strategies for establishing or augmenting populations of humpback chub. Humpback Chub Reintroduction ad hoc Team. Upper Colorado River Endangered Fish Recovery Program, Denver, CO.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Signed:

Brian Scheer

Dale Ryden

Michael Gross

Haden VanWinkle

Principal Investigators

11/18/2021