

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2021 ANNUAL REPORT

PROJECT: 29B

Project Title

Operation and Maintenance of Ouray National Fish Hatchery (Randlett Unit)

Bureau of Reclamation Agreement Number:

N/A

Project/Grant Period:

Start date: 10/01/2020

End date: 09/30/2021

Reporting period end date: 09/30/2021

Is this the final report? Yes _____ No X

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Abstract:

Ouray National Fish Hatchery (ONFH) Randlett Unit was established in May 1996 as a fish refuge and technology development facility to assist in the recovery of the four listed Colorado River fishes: Razorback Sucker, Colorado Pikeminnow, Bonytail, and Humpback Chub. In 2021, ONFH Randlett Unit exceeded fish production/stocking goals established by the Upper Colorado River Endangered Fish Recovery Program (Recovery Program) for Razorback Sucker and stocked the Bonytail available. The hatchery will continue to maintain Humpback Chub collected from Desolation Canyon in 2009 as a refuge population and potentially as a source of future broodstock.

Study Schedule:

1996-Ongoing

Relationship to RIPRAP:

General Recovery Program Support Action Plan

IV. Manage genetic integrity and augment or restore populations.

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- IV.A. Genetics management.
- IV.A.4 Secure and manage genetic stocks in refugia.
- IV.A.4.a. Razorback Sucker
- IV.A.4.b. Bonytail
- IV.A.4.c Humpback Chub
- IV.A.4.a.(1) Middle and Lower Green River.
- IV.C. Operate and maintain facilities.
- IV.C.1. Ouray National Fish Hatchery.

Green River Action Plan: Main Stem.

- IV.A. Augment or restore populations as needed.
- IV.A.1. Develop State stocking plan for the four endangered fishes in the Green River.
- V.A.1.c. Implement plan.

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

Stocking goals established by the Recovery Program include the annual production and distribution of 6,000 Razorback Sucker (RZ; *Xyrauchen texanus*) averaging 350 mm total length (TL) and 10,000 Bonytail (BT; *Gila elegans*) averaging 250 mm TL into the middle and lower Green River in Utah. Ouray NFH (ONFH) exceeded stocking goals during 2021 for RZ, stocking 10,125 RZ averaging 355 mm. ONFH stocked 10,057 BT averaging 208.4 mm TL. Fish distribution during 2021 resulted in 8,234 RZ stocked in the Green River near ONFH, and 1920 RZ stocked at Green River State Park boat ramp in Green River UT. For BT, 2664 were stocked at Rainbow Park on Dinosaur National Monument, 3531 were stocked at Swasey's Boat ramp in Green River UT, and 3,862 were stocked in the Green River near ONFH.

RZ spawned in 2021 produced approximately 265,000 fry across 15 lots. In addition, staff at ONFH modified fertilization protocols of the nursery ponds producing natural feed that lasted until early August on BT fry ponds. A mishap with pond screens led to a significant loss of the 2021 RZ cohort being reared for fall 2022 release. The remaining 2021 RZ cohort was transferred to our indoor tanks in September of 2021, with current number of fish at about 1800. ONFH has an additional 5800 RZ from prior cohort years that were not released during their target year due to size inadequacy. Bonytail and Colorado Pikeminnow (CP; *Ptychocheilus lucius*) swim-up fry were requested from Dexter, NM in 2021. Currently, about 18,800 BT are being reared indoors. Ten adult Humpback Chub (*Gila cypha*) collected from Desolation Canyon in 2009 remain in our indoor facility.

Both avian and salamander depredation was controlled at ONFH during 2020 and 2021, allowing adequate survival to meet and exceed stocking schedules. Salamander control continues to be an ongoing process but pre-emptive efforts from the hatchery crew have significantly reduced salamander depredation. With the reduced depredation more efficient production strategies can be employed. Additionally, otters invaded ONFH this fall. How they found their way into the hatchery is not quite clear, but we do know they were accessing the ponds for about one week before they were captured and relocated to the Provo River UT. A complete inventory of broodstock should be done in spring 2022 to assess losses due to otter depredation but based on remains a rough estimate puts loss at about 30-40 fish.

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This fall the staff at Ouray cooperated with the Green River FWCO, Program Director's Office and the Southwestern Native Aquatic Resources & Recovery Center (formerly Dexter National Fish Hatchery) to assist in acquisition of YOY CP for development of broodstock. Unfortunately, only 5 YOY CP were found in the middle Green River this year. Pond liners were replaced in ponds A&B 4-6 but were not able to be used due to improper installation of link-seal system on the kettle modifications. Warranty work is currently being scheduled for later this winter. The ponds should be online and ready for use in spring 2022.

Additional noteworthy observations:

LED lighting continues to reduce electrical consumption as well as reducing stress on the fish. New hatchery tanks are working well.

Recommendations:

Primary recommendations for ONFH include the following:

- Improve current water supply system.
 - This should be done as soon as possible and could be accomplished by development of an infiltration gallery system, new deeper well field, or other means. Current water system is plagued by heavy metals (e.g., manganese) that can cause issues with piping/equipment and require special water treatment. In addition, portions of the current well system have experienced failures and will likely continue to do so. Current flow capacity is less than optimal, limiting temperature control and expansion plans. Ouray NFH was listed as one of the highest energy consumers in a recent energy audit due to the amount of pumping required by the current system.
- Achieve a staffing level that facilitates safer conditions for employees and fish holdings.
 - Current staffing is below historic levels despite increased workload. Borrowing of staff from other stations is not always possible and current staffing levels are below what is required to safely accomplish certain tasks. In addition, plans to increase production of native fishes (more species and/or fish) for the Recovery Program requires an adequate amount of staffing.
- Provide a modicum of housing for ONFH employees.
 - Ouray is one of a minority of remote hatcheries that does not offer some manner of temporary or permanent housing. This lack of housing makes it more difficult to recruit and retain permanent and temporary employees. In addition, the lack of nearby employees reduces response times to alarms/emergencies at the hatchery and flexibility on facility oversight.
- Conduct experiment in fall of 2022 using typical stocking procedures with a simultaneous paired release of larger-sized RZ leftover from prior cohorts and the current RZ cohort targeted for fall 2022 release.

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- Size at stocking is known to be related to post-stocking survival. Releasing these groups at the same time and same location will decrease confounding temporal and spatial factors that often plague similar studies.
- This line of action will also allow us to bolster the total number of RZ released in 2022. This is important given the significant loss of the 2021 cohort.
- Focus on increasing size of a sub-set of CP holdings to use for experiments of CP predation on other native fishes.
 - A feasibility study is investigating the potential to reintroduce CP into Grand Canyon and other areas of the Colorado River system. Some have expressed concern about potential negative impacts of such actions on the other native fishes targeted for recovery, especially given the Colorado River system is vastly modified from habitat conditions its native fishes co-evolved within.
 - USGS (David Ward [POC and experiment PI]) has previously collected data on this topic using tank/lab experiments. Access to CP and the availability of pond conditions at ONFH will facilitate augmented experimental design(s) and further data collection and interpretation. Results will assist in evaluating potential impact of CP reintroductions and stockings on other fish species native to the Colorado River system.
- Install a raceway system.
 - A raceway system would greatly benefit ONFH. It would be used as an intermittent holding location between the ponds and hatchery building. The raceway would be used for treatments, sorting, and sampling before fish enter the hatchery building. This would decrease the risk of infecting the building with parasites/diseases and adding organic load to the filters.
- Bird protection netting over the 0.2 ac ponds should be replaced in the next few years.
- We recommend continuing the stocking of BT into receiving waters of 18°C or higher, and stocking into backwaters connected to the river when possible.
- We recommend continuing the practice of blending receiving water into hauling water for pre-stocking acclimation.
- We recommend discussion on stocking schedules that considers recent data synthesis on survival, and when possible, reproductive contribution.
- We recommend stocking of various life stages of BT and RZ in floodplain wetlands with related studies on aspects of growth, survival, egression, and fitness.

Project Status:

On track and ongoing.

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FY 2021 Budget Status

Funds Provided: \$601,860.00

Funds Expended: \$601,860.00

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

Passive integrated transponder (PIT) tag data submitted to Program Directors Office on October 6, 2021.

Signed:

Matthew G. Fry, Principal Investigator (recently resigned)

11/17/2021

Andrew A. Schultz, Acting Principal Investigator

2/4/2022