COLORADO RIVER RECOVERY PROGRAM **RECOVERY PROGRAM**
FY 2006 ANNUAL PROJECT REPORT **PROJECT NUMBER: 29b**

I. Project Title: **Operation and Maintenance of Ouray National Fish Hatchery.**

II. Principal Investigator(s):

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III. Project Summary:

Ouray National Fish Hatchery (Ouray NFH) was established in May 1996 as a fish refugia and technology development facility to assist in the recovery of the four endangered Colorado River fish: razorback sucker *Xyrauchen texanus*, Colorado pikeminnow *Ptychocheilus lucius*, humpback chub *Gila cypha*, and bonytail *G. elegans*. Currently, the primary focus of the facility is propagating the razorback sucker, but potential to bring Yampa River humpback chubs into refugia at the station exists.

Ouray NFH is located 57 kilometers (km) southwest of Vernal, Utah, on the Ouray National Wildlife Refuge (Ouray NWR). The facility consists of an 114,000 liter (l) indoor recirculating hatchery with 27 2.4 meter (m) circular fiberglass tanks, and 30 1.2 m circular fiberglass tanks. The isolation room consists of twelve 0.9 m^2 circular fiberglass tanks that can be run as single pass cold water tanks or run as a separate re-use system. There are also 24 810 m^2 surface area ponds covered by bird netting, and 12, 2025 m^2 surface area ponds. The water source consists of seven shallow wells (15 m deep) located near the Green River approximately 0.8 km from the hatchery. The hatchery has its administrative office located in a fisheries complex shared with the Colorado River Fisheries Project (CRFP), Utah Fish and Wildlife Management Assistance Office, and Jones Hole National Fish Hatchery in Vernal, Utah.

The basic operation plan for the facility is to operate a genetically sound captive propagation program to maintain approximately 500 captive razorback sucker broodstock and produce sufficient larvae needed for floodplain wetland studies and hatchery production. The production goal is to rear 14,895 300 + millimeter (mm) sub-adult razorback sucker to stock into the middle and lower Green River in Utah. This stocking goal was established by the Upper Colorado River Endangered Fish Recovery Program (Recovery Program).

IV. Study Schedule: 1996- Ongoing

V. Relationship to RIPRAP:

General Recovery Program Support Action Plan
IV.A. Genetics Management
IV.A.4. Secure and manage the following species in refugia
IV.A.4.a. Razorback sucker
IV.A.4.a (1) Middle Green River
IV.B. Conduct annual fish propagation activities
IV.B.2. Implement integrated stocking plan
IV.C. Operate and maintain facilities
IV.C.1. Ouray
Green River Action Plan: Mainstem
IV.A.1.c. Implement (stocking) plan.

VI. Accomplishment of FY 2006 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

In April and May 2006, Ouray NFH spawned approximately 248 females and 277 male razorback sucker captive brood stock, on three different dates, resulting in 5,430,000 eggs and 740,500 larvae. The first spawn (18 April), was to produce fish for production purposes for Ouray NFH. The second and third spawns (1 and 12 May, respectively) were to produce larvae for the Recovery Program to perform a larval drift study (Table 1). Ouray NFH retained approximately 80,000 larvae which are now being reared to meet the Integrated Stocking Plan of the Recovery Program, requiring 14,895 razorback suckers 300 + mm stocked into the middle and lower Green River yearly for six years. The remaining fish (less mortalities) were used in the drift experiment, or stocked into Leota Bottom 10, Ouray NWR, for field experiments.

Ouray NFH was again successful in delaying the spawn of razorback sucker brood stock for nearly a month to provide larvae at the requested time for the Recovery Program to conduct larval drift studies on the middle Green River. Broodstock were harvested from the ponds at OURAY NFH a few weeks earlier than usual, (29 March through 8 April 2005), before pond temperatures reached 12 ^{o} Celsius (C). They were brought inside the hatchery building where they were held in well water (also 12 ^{o} C) until the time they would be required to spawn. At that time, the temperature of the water in the tank they were being held in was gradually increased to 16 ^{o} C and they were given hormone injections to induce gamete production. This was done for three different groups of razorbacks to produce spawns at three different dates. This created lots of extra work for the staff but they rose to the occasion and made this effort successful. The larvae for the drift studies were marked (sometimes multiple times) and released into the middle Green River at three different flows and levels of flood plain inundation. Light traps were set in these flood plain areas and backwaters and larvae were collected. This study provides

valuable insight into the natural life history of the razorback sucker. The Ouray NFH played an important part in making this study a success.

As a result of predation by double-crested cormorants *Phalacrocorax auritus* and great blue herons *Ardea herodias* in 2005, all 24 production ponds were covered with nets to protect the endangered fish from predation by these birds. The week of 22 March, 21,700 100 to 200 mm, 10 month old fish were stocked into 22 production ponds from the recirculating hatchery for grow-out to 300+ mm by fall. In addition, two of the production ponds were stocked with approximately 8,000 larvae per pond from the production spawn in the spring, and a third was stocked with 8,000 more fry later that summer.

Ouray NFH had a record year in 2006, producing and stocking 15,113 razorback sucker into the Green River between June and October. Of this total, 5,022 were stocked into the lower Green River, at Green River Utah, and 10,091 were stocked into the middle Green River, at Randlett, Utah. These fish averaged over 290 mm in total length and averaged 290 grams per fish. This was the first time in ten years (1996–2006) that Ouray NFH has met or exceeded the stocking quota for razorback suckers.

Ouray NFH is currently maintaining approximately 500 (25 lots) genetically sound Green River razorback sucker brood stock and continues to rear over 25,000 2006 razorback sucker to meet the Recovery Plan goal for 2007, as well as attempting to overwinter 23,000 extra 2006 razorback suckers outside for stocking into the Stirrup wetland in the spring of 2007. In addition to these fish produced in 2006, we are holding approximately 3,000 fish produced in 2005 that did not make 300 mm this year, but should be 300 mm+ by spring of 2007, and will get stocked into the Green River.

A seventh well was drilled in the well field in 2006. Funds to do this were provided from Maintenance Management Systems and the remainder of the funds needed came from the U.S. Bureau of Reclamation. Ouray NFH staff provided the labor and expertise necessary to complete the job. The well now produces approximately 560 liters/minute, bringing our water supply up to 28,000 liters/minute. This extra water will allow us to manage the well field more efficiently and hopefully prolong the life of the other six wells.

The Recovery Program also provided funds to purchase and build a new 3,780 liter fish hauling trailer for stocking fish at Green River, Utah. With this new trailer, only two stocking trips will be necessary, where it takes five trips with the current fish hauling abilities. Thanks to the Recovery Program.

The Ouray NFH staff conducted many tours of the facility for various groups and individuals in 2006. The hatchery also participated in the annual Ouray NWR open house on 13 May. The public were able to see larval, one year old, and adult razorback sucker broodstock. A total of 390 individuals toured the facilities in 2006.

VII. Recommendations:

Ouray NFH has spawned all razorback sucker broodstock on station for four years running in an effort to provide the Recovery Program with larvae for entrainment and recruitment studies. As a result, hatching success has declined in each of the four years. In an effort to reduce the pressure on these fish to produce gametes every year, no excess larvae will be produced in 2007, thus allowing most of the broodstock a rest from the stress of handling, spawning and hormone injections. In the future, no more than half of the broodstock should be used in any given year to reduce the pressure on these fish. Better management of these broodstock should result in increased fecundity and hatching success.

Continue management and operation of facilities to serve as a primary refuge for endangered fishes of the Upper Colorado Basin.

VIII. Project Status: Project in ongoing and on track

IX. FY 2006 Budget Status

A. Funds Provided: $437,000
B. Funds Expended: $579,817
C. Difference: $142,817 (Carryover and additional funds from Program Office for new trailer)
D. Percent of the FY 2006 work completed, and projected costs to complete: 100%
E. Recovery Program funds spent for publication charges: $0

X. Status of Data Submission: PIT tag data submitted by 3 November 2006.

XI. Signed: Michael Montagne 6 November 2006