

I. Project title: **Propagation Facilities, in the Grand Valley (24 Road Hatchery, Horsethief Ponds, and grow-out ponds), for Captive Rearing of Endangered Fishes for the Upper Colorado River Basin.**

II. Principal Investigator(s):

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III. Project Summary:

Captive rearing of endangered fish for the Upper Colorado River Basin began in the Grand Valley in 1992. The Horsethief Rearing Ponds were put into operation to secure propagation facilities with adequate equipment and personnel for captive propagation of endangered species for the Recovery Program in the upper Colorado River Basin. Additional propagation facilities were needed to expand propagation efforts, therefore in 1996 The 24 Road Hatchery was constructed inside of an existing warehouse (donated by the Bureau of Reclamation) at 1149 24 Road, Grand Junction, CO. The Hatchery was expanded in the winter of 1998-1999, and now contains two separate water re-use systems. In addition to the hatchery expansion, numerous ponds have been acquired and are used to grow razorback sucker for stocking into the Colorado, Gunnison, and San Juan Rivers.

Broodstock are held at Horsethief Ponds and spawned in spring. Larvae are taken to the 24-Road Hatchery and reared for about one year. After 1 year in the hatchery, fish are stocked into grow-out ponds where they are held for about 6 months. After additional growth in the ponds, fish are harvested and stocked into the Colorado, Green and Gunnison rivers in accordance with the approved stocking plans.

IV. Study Schedule: 2006 to end of Recovery Program

V. Relationship to RIPRAP: General Recovery Program Support Action Plan

IV. Manage genetic integrity and augment or restore populations

IV.C. Operate and maintain facilities

IV.C.2. Grand Valley Endangered Fish Facilities

VI. Accomplishment of FY 2005 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

24 Road Intensive Culture Hatchery

Prior to spawning in April, 2005, about 18,700 age-1 razorback suckers were stocked into various grow-out ponds in the Grand Valley from the 24-Rd facility. These fish represented young from 19 different paired matings. Fish were stocked as a mixture of fish from each lot. Fish from the different lots were stocked in equal numbers in each pond. These fish were not PIT tagged so that individuals from the different lots will not be identifiable at harvest time.

Unlike previous years, some fish were held in the hatchery and reared to stocking size and then stocked directly into the Colorado and Green rivers to supplement fish reared in the grow-out ponds. In 2005, a total of 1,641 razorback suckers were stocked into the Green River and 4,500 razorback suckers were stocked into the Colorado River directly from the intensive-culture hatchery (Table 1). We intend to repeat this process in 2006 to assist in meeting our propagation goals.

In April 2005, razorback broodstock held at Horsethief Rearing Ponds were spawned and the eggs were transferred to the 24 Road Hatchery. A total of 23 paired matings were made. Initial hatching success resulted in larvae from 18 lots (five small lot did not hatch). After growth to about 1 inch, 133,000 larvae were transported to the San Juan Grow-out ponds located near Farmington NM. In addition, about 115,000 one-inch-long fish were stocked into Grand Valley grow-out ponds that will hold water over the winter to supplement the larger fish stocked earlier. The hatchery is currently holding about 28,000 4-5 inch fish for stocking in 2006. About 18,000 of these fish will be stocked into grow-out ponds next spring and the remainder will be held in the hatchery until stocking size and stocked directly into the Green and Colorado rivers.

Horsethief Ponds

About 350 adult broodstock are currently being held in Horsethief Ponds. These fish will be used for future spawning. Adults are stocked into the Colorado River after they have served their purpose and have contributed to future generations. A total of 57 adult-size fish were taken from Horsethief ponds and stocked into the river last spring (Table 1). These fish were from lots that were no longer necessary for fish production.

Grow-out Ponds

In fall, 9,174 age-1 razorback suckers were harvested from grow-out ponds and stocked into the Colorado (5,796), Gunnison (776) and Green (2,602) rivers. This was a 25% increase over the number harvested from the ponds in 2004. Survival in the grow-out ponds ranged from very low to very high. Condition of harvested fish also varied among the ponds. Some

of the fish were undoubtedly holdovers from previous years. All leased ponds required sampling with fyke nets which is less than 100% effective. We know that at least some of the leased ponds have holdovers which we will attempt to catch next spring. Some of these ponds are very deep and sampling with fyke nets is not effective under some conditions. Evaluation of management of the grow-out ponds is a continuous process. We implemented several management changes that increased production in some of our ponds. We are continuing to evaluate management options that will improve the survival and growth of razorback suckers in the grow-out ponds.

Stocking Summary

We stocked a total of 15,876 razorback suckers into the Colorado (10,353), Green (4,243) and Gunnison (1,280) rivers in 2005 (Figures 1-3, Table 1). This number exceeded our combined stocking target by 981 fish. However, we were not able to distribute the fish exactly as prescribed in the Integrated Stocking Plan (Nesler et al. 2003).

The Propagation Plan calls for 3,310 fish stocked into the Colorado River upstream from the Grand Valley, 3,310 fish stocked into the Colorado River in the Grand Valley and 3,310 fish stocked into the Gunnison River upstream from Redlands Diversion Dam. No razorback suckers were stocked into the upper Colorado River or directly into the Gunnison River upstream from Redlands Diversion because fish screens were not operational in either location. Some fish were stocked into an off channel pond that is connected to the Gunnison River at high water. Stocking will resume in the upper rivers when fish screens become operational

The Integrated Stocking Plan calls for stocking 4,965 razorback suckers into the middle Green River, but we were only able to stock 4,243 fish. This was related to several issues, but was primarily a result of the fish-health inspection requirements of the State of Utah. Timing of fish health inspections has been improved for 2006 and an increased number of fish from the 24-RD Hatchery will be stocked directly into the Green River in 2006.

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

- II Project Status: Project is ongoing and on track

- IX. FY 2005 Budget:
 - A. Funds Provided: \$374,700
 - B. Funds Expended: \$374,700
 - C. Difference:-0-
 - D. Percent of the FY 2003 work completed, and projected costs to complete
 - E. Recovery Program funds spent for publication charges:-0-

- X. Status of Data Submission: PIT tag numbers and data associated with stocked fish have been submitted to the data base.

XI. Signed: Chuck McAda

11/17/05

APPENDIX:

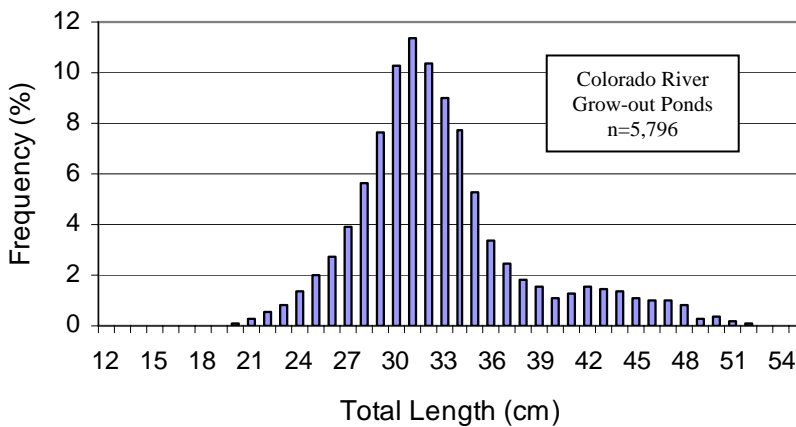
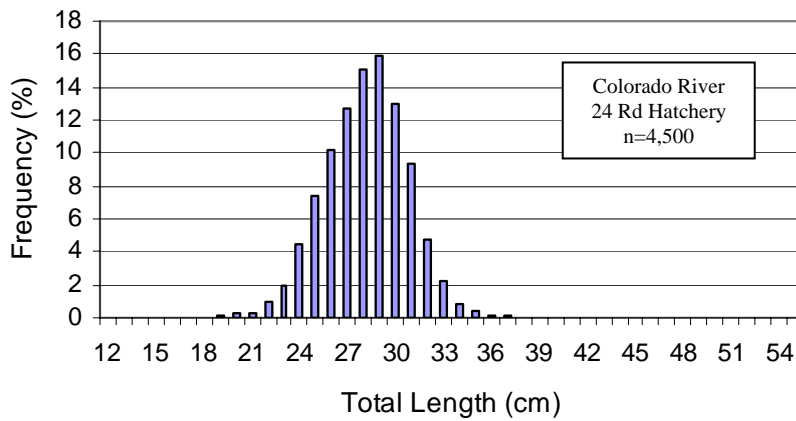
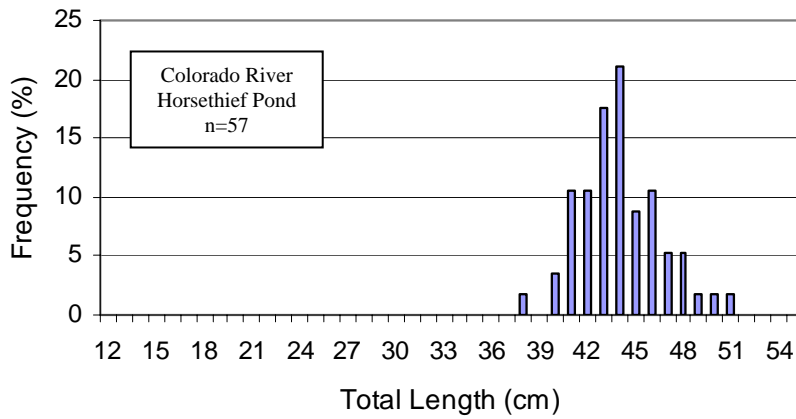


FIGURE 1. Length frequency distribution of razorback suckers stocked into the Colorado River in the Grand Valley by Grand Junction, CRFP in 2005. Top, spring stocking from Horsethief Ponds, n=57; Middle, summer stocking from 24 RD Hatchery, n=4,500; Bottom, fall stocking from combined grow-out ponds, n=5,796.

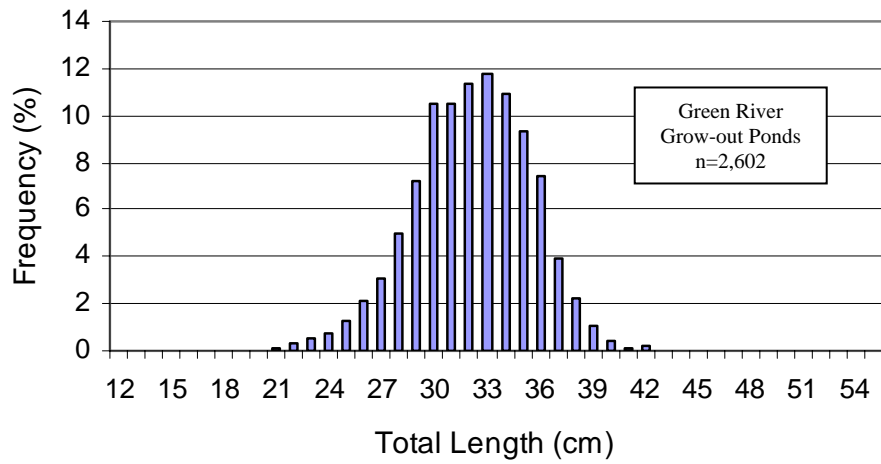
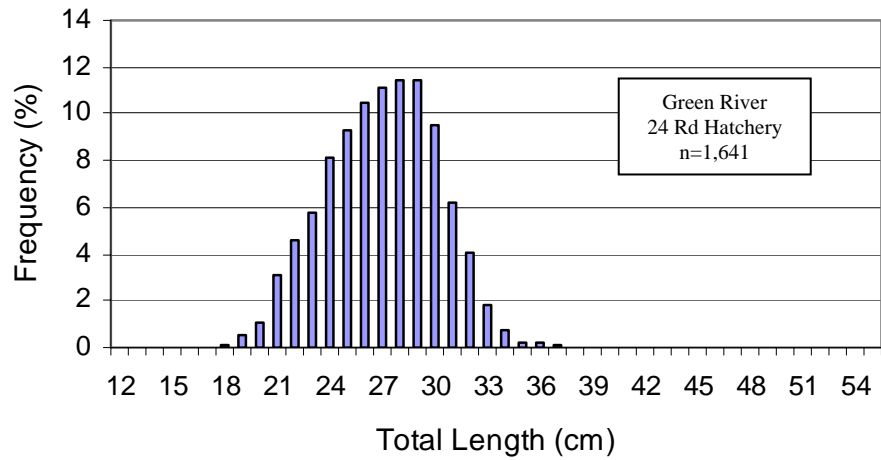


FIGURE 2. Length frequency distribution of razorback suckers stocked into the middle Green River near Green River, UT by Grand Junction, CRFP in 2005. Top, summer stocking from 24 RD Hatchery, n=1,641; Bottom, fall stocking from combined grow-out ponds, n=2,602.

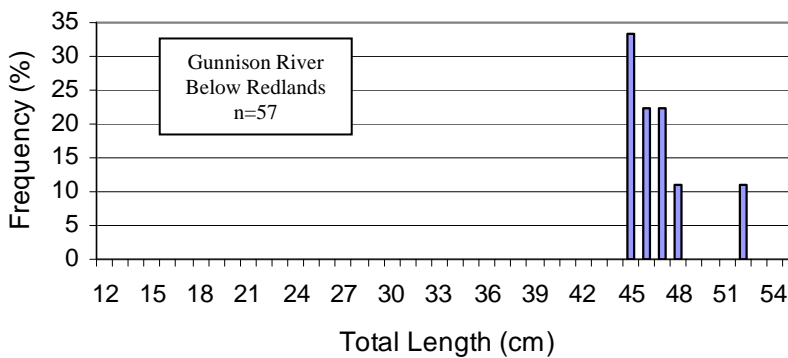
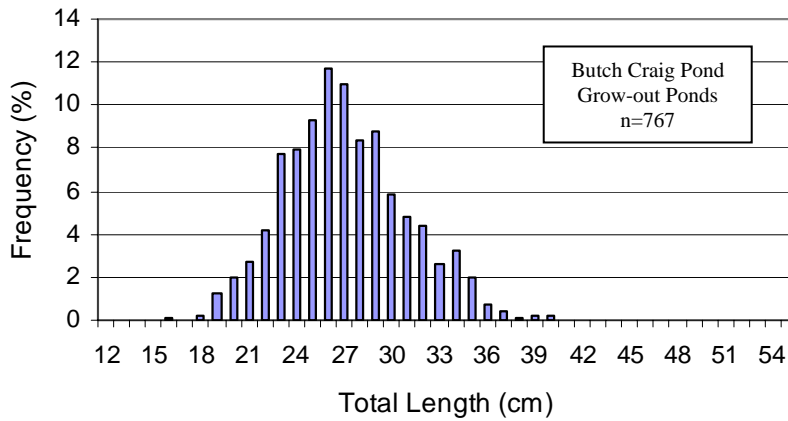
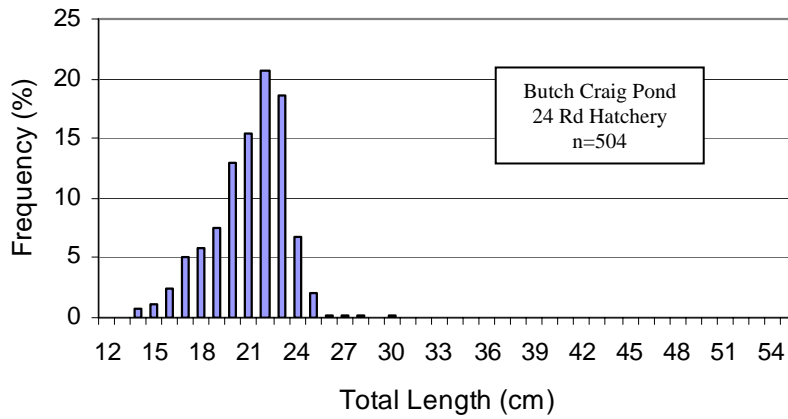


FIGURE 3. Length frequency distribution of razorback suckers stocked into the Gunnison River and Butch Craig pond (part of floodplain restoration) by Grand Junction CRFP in 2005. Top, Butch Craig pond from 24 RD Hatchery (n=504); Middle, Butch Craig pond from combined grow-out ponds (n=767); Bottom, Gunnison River downstream of Redlands Diversion Dam from grow-out ponds (n=9)

TABLE 1. Number stocked, stocking location, and summary statistics for razorback suckers stocked by Grand Junction CRFP, 2005.

FIELD STATION	SPECIES	SOURCE	STOCKING LOCATION	STOCKING SEASON	TOTAL NUMBER	AVERAGE LENGTH (MM)	SIZE RANGE (MM) MIN - MAX (SE)
Grd Jct FWS	Razorback Sucker	Horsethief Ponds	Colorado River in Grand Valley	Spring	57	440	382 - 510 (3.36)
Grd Jct FWS	Razorback Sucker	24 RD Hatchery	Colorado River in Grand Valley	Late Spring - Summer	4,500	281	174 - 375 (0.38)
Grd Jct FWS	Razorback Sucker	Grow-out Ponds	Colorado River in Grand Valley	Late Summer - Fall	5,796	327	182 - 530 (0.70)
Grd Jct FWS	Razorback Sucker	24 RD Hatchery	Green River near Green River UT	Summer	1,641	269	181 - 370 (0.79)
Grd Jct FWS	Razorback Sucker	Grow-out Ponds	Green River near Green River UT	Late Summer - Fall	2,602	321	212 - 427 (0.64)
Grd Jct FWS	Razorback Sucker	24 RD Hatchery	Butch Craig Pond (Gunnison River)	Summer	504	209	135 - 300 (1.03)
Grd Jct FWS	Razorback Sucker	Grow-out Ponds	Butch Craig Pond (Gunnison River)	Late Summer - Fall	767	270	164 - 402 (1.41)
Grd Jct FWS	Razorback Sucker	Grow-out Ponds	Gunnison River below Redlands Diversion	Fall	9	468	451 - 523 (7.54)
Grand Total					15,876		