

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. Eggs are taken to the 24-Road Hatchery, hatched 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 approved stocking plans. Additional fish are held in the 24-Road Hatchery until they reach about 300 mm total length and are then stocked directly into the upper basin rivers.

- IV. Study Schedule: 2008 to end of Recovery Program
- V. 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
- VI. Accomplishment of FY 2008 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

24 Road Intensive Culture Hatchery

Prior to spawning in April, 2008, about 18,000 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.

As in 2007, some fish were held in the hatchery and reared to stocking size and then stocked directly into the Colorado, Gunnison, and Green rivers to supplement fish reared in the grow-out ponds. In 2008, a total of 3,065 razorback suckers were stocked into the Green River, 2,585 razorback suckers were stocked into the Gunnison River, and 2,585 razorback suckers were stocked into the Colorado River directly from the intensive-culture hatchery. These fish averaged 280 mm total length (range, 220–395 mm)

In April 2008, razorback broodstock held at Horsethief Rearing Ponds were spawned and the eggs were transferred to the 24 Road Hatchery. The hatchery is currently holding about 28,000 3–4 inch fish for stocking in 2009. These fish are from 14 individual paired matings. 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, Gunnison, and Colorado rivers in early summer 2009.

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 18 excess broodstock were stocked into the Colorado River in 2008. These fish averaged 450 mm total length.

Grow-out Ponds

In fall, 11,050 razorback suckers were harvested from grow-out ponds and stocked into the Colorado (6,960), Gunnison (2,810), and Green (1,280) rivers. 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. In addition, an unexpectedly high number of age-0 fry stocked into Beswick's pond survived after being stocked on top of the normal stocking of fish to be harvested. These fish grew substantially better than those being raised in the 24-Road Hatchery, but used sufficient resources such that growth and survival of the age-1 fish was reduced. Even though these fish were less than 250 mm total length, they were harvested, PIT tagged and stocked to prevent crowding and reduced growth for fish stocked next spring. Excluding fish from Beswick's Pond estimated to be age 0, fish stocked from all ponds averaged 317 mm tl.

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. However, survival of fish in several of our growout ponds was less than observed in 2006 and 2007. In contrast, growth and survival was better in other ponds.

Stocking Summary

We stocked a total of 18,058 razorback suckers into the Colorado (8,574), Green (5,109) and Gunnison (4,375) rivers in 2008. This number exceeded our stocking goal of 14,350, but many of these fish were less than 250 mm as a result of the unexpected survival of age-0 fish described above. Length-frequency distributions from selected examples of the different fish sources are presented in Figure 1. The Beswick's Pond data show the large numbers of age-0 fish that were harvested and stocked in 2008. These fish increased our stocking numbers, but lowered the average size of fish stocked. Although smaller than the preferred length, these fish will provide a useful test of some of the floodplain hypotheses. They survived and grew in a semi-natural environment, feeding only on natural food, and reached a larger size than the fish in the hatchery during the same time period.

- 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 2008 Budget:
 - A. Funds Provided: \$466,994

B. Funds Expended: \$466,994

C. Difference:-0-

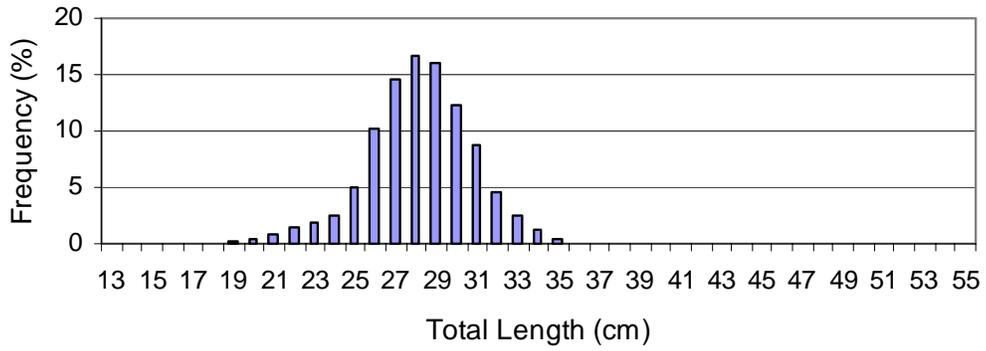
D. Percent of the FY 2008 work completed, and projected costs to complete

E. Recovery Program funds spent for publication charges:-0-

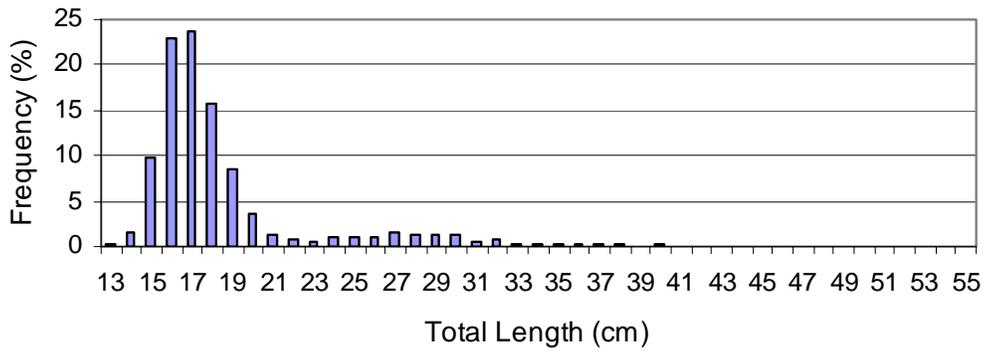
X. Status of Data Submission: PIT tag numbers and data associated with stocked fish have been submitted to the data base.

XI. Signed: Chuck McAda 11/14/08

Stocked from 24 Road (n=6,982)



Stocked from Beswick's Pond (n=5632)



Stocked from Elam Pond (n=1,046)

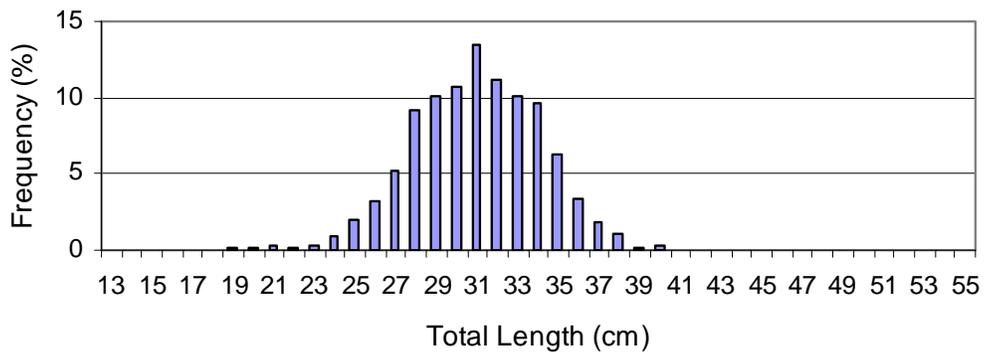
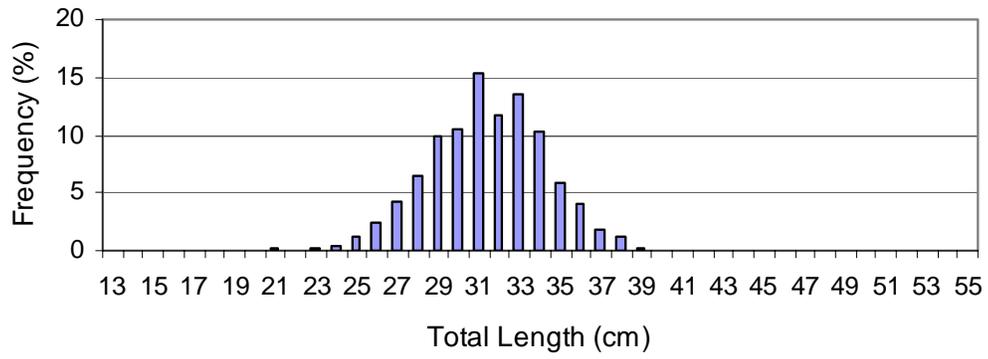
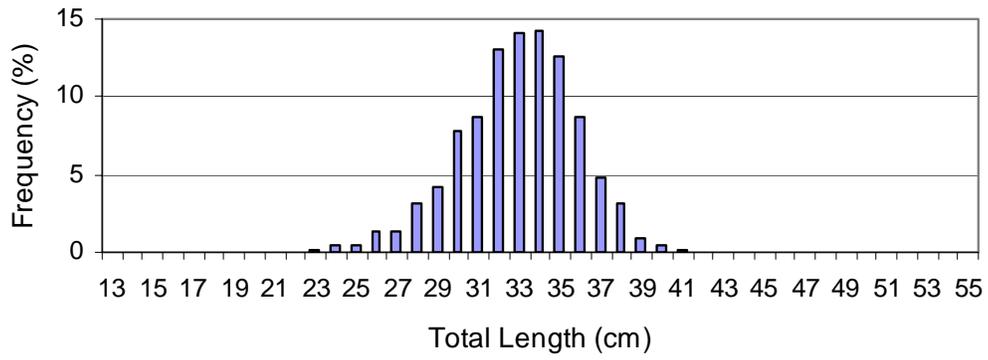


Figure 1. Selected length-frequency distributions of razorback suckers harvested from different sources and stocked into upper basin rivers.

Stocked from Feuborne Pond (n=1,107)



Stocked from Morse Pond (n=1,403)



Stocked from Peters Ponds (n=1,412)

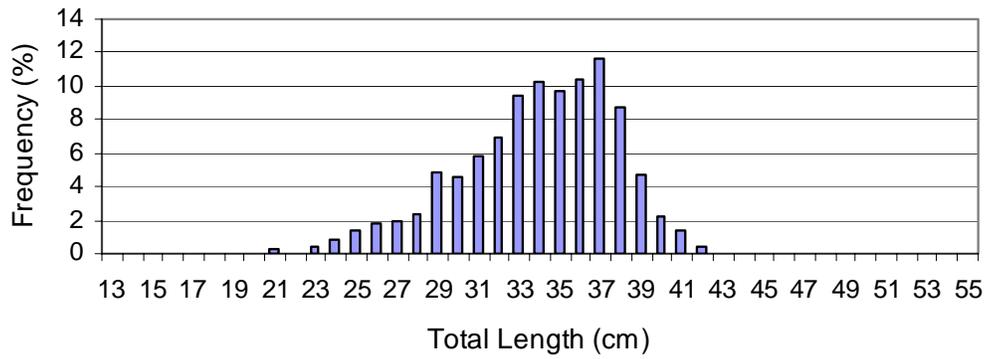


Figure 1. (Continued)