

**COLORADO RIVER RECOVERY PROGRAM
FY 2008-2009 PROPOSED SCOPE OF WORK for:**

Project #: _151__

Determination of survival during removal, transport, and holding of *Gila* spp. taken into captivity from rivers of the Dinosaur National Monument

Lead Agency: U.S. Fish and Wildlife Service

Submitted by:

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Category:

- Ongoing project
 Ongoing-revised project
 Requested new project
 Unsolicited proposal

Expected Funding Source:

- Annual funds
 Capital funds
 Other (explain)

I. Title of Proposal:

Determination of survival during removal, transport, and holding of *Gila* spp. taken into captivity from rivers of the Dinosaur National Monument

II. Relationship to RIPRAP:

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

IV. Manage genetic integrity and augment or restore populations.

IV.A. Genetics

IV. A. 4. Secure and manage the following species in refugia.. IV.A.4.c.

Humpback chub

IV.A.4.c. (4) Yampa Canyon

III. Study Background/Rationale and Hypotheses:

The Yampa River humpback chub population has always been small relative to most other humpback chub populations. However, electrofishing and angling catch rates of humpback chub have declined since 1990 (Karp and Tyus 1990, Haines and Modde 2002, Finney 2006). Karp and Tyus (1990) did not calculate a population estimate from their data. Haines and Modde (2002) could not calculate an estimate but inferred the population size to be about 400 adults. They collected a total of 80 unique adults from 1998 through 2000, with 2-3 passes per year. Finney (2006) collected 12 adults in an expanded effort that included Lodore and Whirlpool/Split Mountain reaches of the Green River. No estimate could be made from this data, but Finney (2006) recommended some humpback chub be captured and removed alive immediately from the canyon to captivity in a refuge to preserve genetic material due to declining catch rates. This probable decline in the Yampa River humpback chub population to a level where its ability to be self-sustaining is in question has raised the need to consider a strategy for preserving the genetics of that population. Currently, only one other of the five total populations of humpback chub has been targeted for creating refugia – the Grand Canyon population. None of the other three populations of humpback chub in the Upper Colorado Basin requires a refuge at this time. We propose to move an unspecified number of young-of-year humpback chub (less than 400 hundred) from the population in Yampa Canyon to two new areas; one is J.W. Mumma Aquatic Species Restoration Facility in Alamosa, Colorado and the other is at the Ouray National Fish Hatchery near Vernal, Utah. No cumulative impact is expected from these proposed projects, because the overall impact of each is expected to be beneficial to the species.

IV. Study Goals, Objectives, End Product:

Goal: To successful capture, transport, and rear wild humpback and roundtail chub in hatcheries to preserve population genetics.

Objectives:

1. To determine the best way to capture and transport *Gila* species from the Yampa River to Ouray National Fish Hatchery and Mumma State Fish Hatchery.
2. To compare catch rates of *Gila* species at different locations in critical habitat on the Yampa and Green rivers.
3. To develop fish culture techniques to rear *Gila* species in two hatcheries to preserve genetic integrity and survival of humpback chub.
4. To compare survival rates of *Gila* species at Ouray National Fish Hatchery and Mumma State Fish Hatchery.

V. Study Area:

The study area includes the lower 72 kilometers (km) of the Yampa River (Colorado); and from river kilometer (rkm) 527-554 on the Green River (Rainbow Park to Whirlpool Canyon, Utah). Boat access will be from Deerlodge Park on the Yampa River and from Echo Park on the Green River. Capture methods and logistics will be focused in locations known to occupy *Gila* species. Fish hauling trucks will be loaded from the Yampa River at Echo Park, and from the Green River at Island Park (536 rkm). Fish will be taken either to the Ouray National Fish Hatchery or Mumma State Fish Hatchery where they will be kept in captivity for one year. The Ouray NFH Hatchery is about 160 km and the Mumma Hatchery 645 km from the collection sites.

VI. Study Method/Approach:

A total of 400 young-of-year (50-100 millimeter [mm] total length [TL]) and juvenile (<300 mm TL) *Gila* species will be collected from the river using seines and/or electrofishing equipment. Fish will be captured during two trips down the Yampa River Canyon in dinosaur nation Monument.

Fish health will be maintained during transport by boats equipped with live-wells, an oxygen supply and a re-circulating pump system. Fish will then be transported to a hatchery truck and acclimated to water temperature and conditions and tempered with salt. Trucks will then transport fish to the appropriate hatchery facility. River and hatchery crews will coordinate efforts using satellite phones.

There may be a possibility of driving into river sampling sites on Mantles Ranch. The U.S. Fish and Wildlife Service is currently negotiating with the new owners of the ranch to see if we can drive to the river near the ranch and sample the river. If this happens, then fish will be captured and then directly transferred to hatchery trucks and taken to the two hatcheries.

Each hatchery will receive 200 fish. Fish will be placed in isolation rooms at each hatchery to keep them away from other fish rearing operations. Fish survival will be determined during various phases of the study: collection to hatchery truck; hatchery truck to facility; after treatment for Asian tapeworm; then monthly for the next year.

All federal and state collecting will be obtained. The State of Utah Department of Agriculture and Department of Natural Resource regulations for bringing fish from another state into Utah have been met. In Utah disease testing is required via the sacrifice of at least 60 individuals of the species being brought into captivity or a surrogate species collected from the same originating waters. In this case red shiner (the surrogate for *Gila* spp.) was collected from the Yampa River and diagnosed at the Service's Fish Health Center in Bozeman, Montana. A positive report resulted, however, prior to bringing the *Gila* spp. on station, hatchery personnel will treat for Asian tape worm to prohibit infecting the station.

All *Gila* mortalities that occur during sampling and transport will be preserved and sent to the larval fish lab at Colorado State University. Once species have been differentiated in hatcheries, humpback chub mortalities will be preserved and sent to museums for observation and educational purposes.

The humpback chub/roundtail chub catch ratio will be determined as fish develop at hatchery facilities. Water quality differences between hatcheries will be monitored to determine the most favorable grow-out parameters. Water temperature and chemistry, i.e. water hardness, pH, and dissolved oxygen etc., will be monitored throughout each lots season in captivity and compared between facilities. Growth rates at different feeding regimes (percent body weight, or feeding at satiation) and raising fish at various densities will also be explored.

After one year of captivity the U.S. Fish and U.S. National Park Service will determine what will be done with remaining *Gila* spp. at each hatchery facility.

VII. Task Description and Schedule:

Task 1.

Three *Gila* spp. collection passes from Deerlodge Park to Echo Park beginning October, 2007.

Task 2. Mumma and Ouray hatcheries transport of *Gila* spp. from river loading locations back to facilities.

Task 3. Rearing of *Gila* spp. in captivity.

Task 4. Data entry, analysis, and reporting – November 2008

Deliverable/Due Dates:

An annual report will provide the background and demonstrate trends and progress toward rearing humpback chub in captivity. November 2008

VIII. Budget for the *Gila* sp. Removal study for FY2008

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|-------------------------|
| Gila Removal SOW FY2007 |
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| Task Activity | Cost |
|---------------|------|
|---------------|------|

| CRFP Labor | |
|--|---------|
| 2 GS-11 Biologist (2 x \$38.17/hr x 8 hrs/day x 4 days) + (2 x \$57.26/OT hr x 2 hrs/day x 4 days) | \$3,359 |
| GS-8 Fish Tech (\$29.14/hr x 8 hrs/day x 4 days) + (\$43.71/OT hrs x 2 hrs/day x 4 days) | \$1,282 |
| GS-5 Tech (\$13.88/hr x 8 hrs/day x 4 days) + (\$20.82/OT hrs x 2 hrs/day x 4 days) | \$611 |
| Subtotal | \$5,251 |

| Travel and Per diem and Maintenance | |
|--|-------|
| Vehicle (1 truck/day x \$0.405/mi x 150 mi/truck x 4 days) | \$243 |
| Per diem (4 people/day x \$20/person x 4 days) | \$320 |
| Maintenance | \$200 |
| Subtotal | \$763 |

| Ouray NFH Labor | |
|---|---------|
| GS-12 Asst. Proj Ldr (\$42.50/hr x 8 hrs/day x 4 days) + (\$63.75/hOT hrs x 2 hrs/day x 4 days) | \$1,870 |
| Subtotal | \$1,870 |
| Travel and Per diem and Maintenance | |
| Vehicle (1 truck/day x \$0.405/mi x 250 mi/truck x 4 days) | \$405 |
| Per diem (1 people/day x \$20/person x 4 days) | \$80 |
| Maintenance | \$200 |
| Subtotal | \$685 |

USFWS total for FY 2008 \$8,569

USFWS budget for 2009: Same as 2008, but with 3% cost of living
increase: \$8,826

| Colorado Division of Wildlife, Mumma State Fish Hatchery Labor and Transport fo fish | |
|--|-------|
| Biologist (\$40/hr x 8 hrs/day x 2 days) | \$640 |
| Technician (\$20/hr x 8 hrs/day x 2 days) | \$320 |
| Vehicle (1 truck/day x \$0.405/mi x 400 mi/truck x 2 days) | \$324 |
| Per diem (2 people/day x \$20/person x 2 days) | \$80 |
| Maintenance | \$200 |

| | |
|---|----------------|
| CDOW total for FY 2008 | \$1,564 |
| CDOW budget for 2009: Same as 2008, but with 3% cost of living increase: | \$1,564 |