COLORADO RIVER RECOVERY PROGRAM Project #: 151
FY 2009-2010 PROPOSED SCOPE OF WORK for:

Collection and Maintenance of Humpback Chub from the Middle Green River (Desolation/Gray Canyons)

Lead Agency: U.S. Fish and Wildlife Service

Submitted by:

Mike Montagne, Hatchery Manager
Ouray National Fish Hatchery
U.S. Fish and Wildlife Service
Vernal, UT 84078-2042
Phone: 435-828-7134
Fax: 435-828-7135
Email: mike_montagne@fws.gov

Paul Bedame
Utah Division of Wildlife Resources
Moab Field Station
1165 South HWY 191 - Suite 4
Moab, UT 84532
Phone: 435-259-3780
Fax: 435-259-3785
paulbadame@utah.gov

Date:10 September 2009

Category:
__Ongoing project
__Ongoing-revised project
X Requested new project
__Unsolicited proposal

Expected Funding Source:
X Annual funds
__Capital funds
__Other (explain)

I. Title of Proposal:

Collection and Maintenance of Humpback Chub from the Middle Green River (Desolation/Gray Canyons)

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.(5) Desolation/Gray Canyons

III. Study Background/Rationale and Hypotheses:

Annual point population estimates for the Desolation/Gray Canyon humpback chub have been calculated for 2001–03 (Jackson and Hudson 2005) and 2006–07. Population estimates during 2001–2003 ranged between 970 and 2,612 adults and

over each year the related coefficient of variation (CV) declined from 36% to 21%. With some changes in site locations and sampling methods estimates in 2006 and 2007 achieved CV values of 16–17%. Population estimates however, have declined significantly to 410 in 2006 and 204 in 2007. Comparisons of catch rates in historical monitoring sites over the last sixteen years support observed declines in population estimates. An important factor in determination of how past estimates relate to the actual population size is the nearly 100% site fidelity observed during fall sampling. High site fidelity results in no mixing between sites within a sampling period and results in an estimate that is only related to sample sites and not the entire reach (Badame 2009, *in progress*).

Due to significant declines in the Desolation humpback chub population, the Utah Division of Wildlife has recommended that humpback chub be captured and removed alive immediately from the canyon and moved to a refuge to preserve genetic material. These *Gila* species are to be transported to Ouray National Fish Hatchery.

This task will involve a single trip through the canyon to collect young-of-year *Gila* for rearing at the Ouray National Fish Hatchery. These fish will be reared and assessed to species as adult characteristics become apparent. These chub are to be held in captivity until their final disposition has been determined by the Colorado River Recovery Program.

A total of 400 young-of-year (50–100 millimeter [mm] total length [TL]) *Gila* species and 20 adult (>200mm TL) will be collected from the river using seines and/or electrofishing equipment. 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 successfully capture, transport, and rear wild humpback and roundtail chubs in hatcheries to preserve population genetics, according to the Plan for the Captive Maintenance of Humpback Chub

Objectives:

1. Develop a humpback chub captive program that conserves the genetic diversity of humpback chub populations, and is capable of producing offspring reflective of that diversity for recovery efforts, if deemed necessary.

2. Establish a genetic captive plan that actively monitors and maintains genetic variability and long term fidelity of each captive population.

3. Establish a chain of custody for captive stocks to allow identification and track individual fish from integration into the captive population until final disposition.

4. Develop fish culture techniques to rear *Gila sp*.

V. Study area:

Desolation and Gray canyons occur south of the Uinta Basin, UT, beginning at Sand Wash (RM 216) and ending at 12 river miles upstream of the town of Green River, UT (RM 120). Fish will be transported and maintained at Ouray National Fish Hatchery in Randlett, UT.

VI. Study Methods/Approach:

A total of 400 young-of-year (50-100 millimeter [mm] total length [TL]) *Gila* species and 20 adult (>200mm TL) will be collected from the Desolation/Gray population using seines and/or electrofishing equipment. *Gila* species will be captured during one trip down the Desolation/Gray Canyon on the Green River. (all necessary permits will be obtained).

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 and tempered with salt. Trucks will then transport fish to the appropriate facility. Fish will be treated for Asian tapeworm with Praziquantel for 24 hours prior to removal from fish hauling truck. River and hatchery crews will coordinate all efforts using satellite phones.

Once at the hatchery fish will be placed under quarantined conditions until a determination can be made to take them out of quarantine. The State of Utah Department of Agriculture and Department of Natural Resource regulations for bringing fish from another state into Utah will be met when crossing state lines. 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* species) will be collected from the Desolation/Gray Canyon and diagnosed at the Service's Fish Health Center in Bozeman, Montana. A positive report resulted, however, prior to bringing the *Gila* species 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. After one year of captivity the Fish and Wildlife Service and the Colorado River Recovery Program will determine what will be done with remaining fish, this includes both species. Whether they remain in captivity or return to the river alive will be discussed one year after fish are taken into facilities.

The humpback chub/roundtail chub catch ratio will be determined as fish develop at hatchery facilities. Standardized protocols for culture of these species will be developed for the purpose of propagation in the future should it be deemed necessary.

VII. Task Description and Schedule:

Description

Task 1. Desolation/Gray population and transfer to Ouray National Fish Hatchery
FY10 – 1 trip will be completed during October 2009 for the Desolation/Gray population.

Task 2. Maintain captive *Gila* species in captivity, keeping different populations separate, growing fish to identifiable size.

Task 3. Maintain *Gila cypha* in captivity.

Task 4. Cross adults in spring/summer to develop broodstock

Task 5. Data entry, analysis, and reporting.

Schedule

Task 1. 10/2010 – 11/2020 (per annum)

Task 2. 10/2010-11/2020 (per annum)

Task 3. 10/2010-11/2020

Task 4. 10/2010-11/2020

Task 5. 11/2010-11/2020 (per annum)

FY 2010–2020 Work

VIII. Deliverable/Due Dates:

An annual report will provide the background and demonstrate trends and progress toward rearing humpback chub in captivity. We will provide data for up to 400 young of year (50–100 mm total length [TL]) *Gila* species and 20 adults (>200 mm TL) collected from the canyons. Numbers surviving 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. Data will be statistically analyzed for catch ratios in critical habitat

and differences between rearing sites and survival following one year of captivity.

Recovery Program annual progress report: November 2010–2020

IX. Budget for the Gila sp. removal study for FY2010

Collection Costs	
Ouray Labor	
GS-12 Biologist ($74.27/hr x 2 hrs OT/day x 4 days/trip x 1 trips)	
(no cost for regular duty hours)	$ 594
GS-11 Biologist ($66.32/hr x 2 hrs OT/day x 4 days/trip x 1 trips)	
(no cost for regular duty hours)	$ 531
GS-7 Biological Technician ($44.13/hr x 2 hrs OT/ trip x 1 trips)	
(drive fish hauling truck)	$ 76
Ouray to Green River, UT (fish transfer)	
(1 truck/trip x 340 mi/truck x $0.505mi x 1 trip)	$ 172
Per diem (hatchery Staff on collection trip)	
(2 people/day x $25/person x 4 days/trip x 1 trips)	$ 200
Sub Total	$1,585
Captive Maintenance Costs	
Ouray Costs (400 Chubs/20 adult humpback chub)*	
Feed (Freeze Dried blood worms, plankton, pellet feed etc)	$2,500
Chemicals	$ 600
Miscellaneous	$ 500
Sub Total	$3,600
Total Cost (FY2010)	$5,185

	USFWS Ouray
FY-2010	$ 5,185
FY-2011	$ 6,222*
FY-2012	$ 7,467*
Total	$18,387

* There will be a 20% cost increase each year to cover labor and operational costs associated with increased numbers of chub on station.

X. Reviewers:

XI. References

Badame, P.V. 2009. Population Estimate for Humpback Chub (*Gila cypha*) in Desolation and Gray Canyons, Green River, Utah 2006-07. Upper Colorado River Endangered Fish Recovery Program. Draft Report in progress. Recovery Implementation Project #22k

Jackson, J.A. and J. M. Hudson. 2005. Population Estimate for Humpback Chub (*Gila cypha*) in Desolation and Gray Canyons, Green River, Utah 2001-2003. Upper Colorado River Endangered Fish Recovery Program. Draft Report. Recovery Implementation Project #22k.