

**COLORADO RIVER RECOVERY PROGRAM
FY-2006-2007 SCOPE OF WORK**

Project No.: 142

Provide Technical Assistance to the Recovery Program

Lead Agency: SWCA Inc., Environmental Consultants

Submitted by: Richard A. Valdez (SWCA)

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Date: March 24, 2006

Category:

Ongoing

Ongoing-revised project

Requested new project

Unsolicited proposal

Expected Funding Source:

Annual funds

Capital funds

Other (Section 7)

I. Title of Proposal: *Provide Technical Assistance to the Recovery Program*

II. Relationship to RIPRAP:

- General Recovery Program Support Action Plan
 - III.A.2.c. evaluate the effectiveness (e.g., nonnative and native fish response) and develop and implement an integrated, viable active control program.
 - IV.E.1. Assess the monitoring needed to evaluate the contribution to recovery of endangered fish stocking over relevant reaches, life stages, and generations. Assessment addressed in 2002 workshop; continued assessment ongoing.
 - IV.E.2. Evaluate endangered fish stocking and revise augmentation plans, as needed.
 - V.A.2. Evaluate population estimates.
 - VII.A.5 Conduct species status review and update recovery goals at least every 5 years.
- Green River Action Plan
 - IIA4 Develop and implement Green River Subbbasin Floodplain Management Plan; IIA4a Validate and refine
- Colorado River Action Plan
 - IIA6 Develop and implement Colorado River Subbbasin Floodplain Management Plan; IIA6a Validate and refine

III. Study Background/Rationale and Hypotheses:

- Program Management: Revise Recovery Goals for Four Big River Fish.— Recovery Goals for humpback chub, Colorado pikeminnow, razorback sucker, and bonytail were approved in August 2002 by the U.S. Fish and Wildlife Service (Service). The Service plans to revise these recovery goals by 2007. Dr. Valdez assisted the Service (in coordination with the Recovery Program) in developing the 2002 recovery goals, and will assist the Service in revising these goals under this Scope of Work.
- Habitat Restoration: Floodplain Management Plans development, implementation, and evaluation. Floodplain Management Plans have been developed for the Green River Subbasin and the Upper Colorado River Subbasin. Dr. Valdez assisted the Recovery Program in development and implementation of these plans, and will continue to provide assistance on floodplain management to the Recovery Program under this Scope of Work.
- Reduction of Nonnative Fish and Sportfish Impacts: Nonnative Fish Workshop and Summary; in-depth data analysis. The Recovery Program has held three workshops on management of nonnative fish in the Upper Colorado River Basin, and seeks assistance on assimilating the information from these workshops. Dr. Valdez assisted the Recovery Program in the conduct and evaluation of these workshops and the nonnative fish management program, and will continue to provide assistance to the Recovery Program under this Scope of Work.
- Propagation and Genetics Management: Summarize, review, and evaluate information on stocking. Stocking native endangered fish is a vital element of the Recovery Program. The stocking of fish and evaluation of their movements and survival continues to be an important aspect of this element. Dr. Valdez has assisted the Recovery Program in these evaluations, and will continue to provide assistance to the Recovery Program under this Scope of Work.
- Research, Monitoring, and Data Management: Population Estimate Workshops and Summary. The Recovery Program has convened two workshops to coordinate all population estimation efforts in the Upper Colorado River Basin. Accurate and precise estimates of population sizes are important requirements of the recovery goals for the endangered fishes. Dr. Valdez assisted the Recovery Program in the conduct of these workshops, and will continue to provide assistance to the Recovery Program under this Scope of Work.
- Program Management: Expert review of Recovery Program reports and documents. The Recovery Program has periodic and ongoing need for development and review of program reports and documents. Dr. Valdez has assisted the Recovery Program in development and/or review of these documents, and will continue to provide assistance to the Recovery Program under this Scope of Work.

IV. Study Goals, Objectives, End Product:

Goal

The goal of this scope of work is to provide a reasonable and prudent response to requests for assistance by the Recovery Program including, but not limited to assistance with revision of recovery goals; floodplain management; the organization, conduct, and synthesis of nonnative fish and population estimation workshops; propagation and genetics management, and development and review of pertinent Recovery Program documents, as requested by the Program Director and/or his designated staff.

Objectives

1. Assist in revising the four endangered fish species recovery goals.
2. Assist with floodplain management.
3. Assist with the conduct and evaluation of nonnative fish workshops and the nonnative fish management program.
4. Assist with the summary, review, and evaluation of propagation and genetics management of native fish.
5. Assist with the conduct and evaluation of population estimation efforts in the Upper Colorado River Basin and Grand Canyon, including workshops.
6. Assist with the periodic and ongoing need for development and review of program reports and documents.

End Products

1. Draft and final revisions of recovery goals for Colorado pikeminnow, humpback chub, razorback sucker, and bonytail.
2. Ongoing review of floodplain management program in the Upper Colorado River Basin.
3. Nonnative Fish Workshop Summary Report and ongoing evaluation of stock assessment and necessary removal levels of nonnative fish.
4. Ongoing review and evaluation of propagation and genetics management.

5. Population Estimation Workshop Summary Report and ongoing evaluation of native fish population estimates in Upper Colorado River Basin and Grand Canyon.
6. Ongoing reviews and evaluations of Recovery Program documents.

V. Study Area:

Worked will be performed principally at the office of Dr. Richard A. Valdez, SWCA Inc., in Logan, UT; and also at the SWCA Office in Broomfield, CO, and the Upper Colorado River Endangered Fish Recovery Program Director's Office in Lakewood, CO.

VI. Study Methods/Approach:

1. Assist the Service (in coordination with the Recovery Program) with revision of the four endangered fish species recovery goals. Dr. Valdez will, at the request of the Service and Program Director, assist the Service with revision of the four endangered fish species recovery goals. Dr. Valdez helped to draft the 2002 recovery goals. The revised recovery goals will be assimilated with past and new information, and consistent with the ESA, implementing regulations, and the Service handbook for recovery plan development.
2. Assist the Recovery Program in floodplain management for the Green River Subbasin and the Upper Colorado River Subbasin. Dr. Valdez assisted with development of the Green River Subbasin Floodplain Management Plan and the Upper Colorado River Subbasin Floodplain Management Plan. Dr. Valdez will assist with further development and implementation of these plans, as well as with the floodplain management program in the upper basin. Dr. Valdez will be available to assist with and evaluate field studies of growth and survival of fish in floodplains, bead and larval drift studies, and prioritization of floodplain sites. Dr. Valdez will also maintain and update the Floodplain Model to help predict larval drift and survival.
3. Assist the Recovery Program in the conduct and evaluation of nonnative fish workshops and the nonnative fish management program. Dr. Valdez will assist the Recovery Program in the conduct and evaluation of the nonnative fish management program in the upper basin. This assistance may be to moderate or assist with nonnative fish workshops; assimilate and synthesize proceedings of nonnative fish workshops convened by the Recovery Program; and provide additional data analyses and program evaluation. Dr. Valdez will implement innovative stock assessment methods for evaluating nonnative fish removal,

including Ricker models, Beverton and Holt recruitment models, and Schaefer catch efficiency curves. Dr. Valdez will also assist with population estimates of nonnative fish, especially problematic species.

4. Ongoing review and evaluation of propagation and genetics management. The Recovery Program has periodic need for evaluation of the propagation and genetics management program. Dr. Valdez will provide assistance in review of documents, reports, and plans. Dr. Valdez will assist with assimilation of recapture data for stocked razorback sucker and bonytail in the upper basin, and will assist evaluation of survival of these stocked fish.
5. Assist the Recovery Program with the conduct and evaluation of population estimation efforts in the Upper Colorado River Basin and Grand Canyon, including workshops. Dr. Valdez will assist the Recovery Program in the conduct and evaluation of population estimates of native fish in the upper basin. This assistance may be to moderate or assist with population estimates workshops; assimilate and synthesize proceedings of population estimates workshops convened by the Recovery Program; and provide additional data analyses and program evaluation for population estimation in the upper basin and Grand Canyon. Dr. Valdez will stay apprised of any developments in population estimation of humpback chub in Grand Canyon and will participate, as reasonable, in Grand Canyon population estimation exercises and workshops.
6. Assist the Recovery Program with the periodic and ongoing need for development and review of program reports and documents. The Recovery Program has the periodic and ongoing need for evaluation of Recovery Program reports and documents. Dr. Valdez will provide assistance in the review of these documents, as requested by the Recovery Program Director.

VII. Task Description and Schedule

Description

1. Assist the Service (in coordination with the Recovery Program) with revision of the four endangered fish species recovery goals.
2. Assist the Recovery Program in floodplain management for the Green River Subbasin and the Upper Colorado River Subbasin.
3. Assist the Recovery Program in the conduct and evaluation of nonnative fish workshops and the nonnative fish management program.

4. Assist the Recovery Program with the summary, review, and evaluation of propagation and genetics management of native fish.
5. Assist the Recovery Program with the conduct and evaluation of population estimation efforts in the Upper Colorado River Basin and Grand Canyon, including workshops.
6. Assist the Recovery Program with the periodic and ongoing need for development and review of program reports and documents.

Schedule

Tasks 1-6: FY2006 - FY2007

VIII. FY-2006 Work (first year of two-year project)

Deliverables/Due Dates:

1. Assist in revising Four Species Recovery Goals: Ongoing.
2. Assist Floodplain Management Program: Ongoing.
3. Assist Nonnative Fish Management Program: Ongoing.
4. Evaluate Propagation and Genetics Management Program: Ongoing.
5. Evaluate Population Estimation Program: Ongoing.
6. Review and Revise Recovery Program Documents: Ongoing.

Budget

Labor (hourly rate) = \$75.00

Estimated travel costs per trip (airfare, lodging, food rental car) = \$500.00

TOTAL FY2006 = up to \$50,000.00, pending availability of funds

FY-2007 Work (second year of two-year study)

Deliverables/Due Dates:

1. Assist in revising Four Species Recovery Goals: Ongoing.
2. Assist Floodplain Management Program: Ongoing.

3. Assist Nonnative Fish Management Program: Ongoing.
4. Evaluate Propagation and Genetics Management Program: Ongoing.
5. Evaluate Population Estimation Program: Ongoing.
6. Review and Revise Recovery Program Documents: Ongoing.

Budget

Labor (hourly rate) = \$75.00

Estimated travel costs per trip (airfare, lodging, food rental car) = \$500.00

TOTAL FY2007 = up to \$50,000.00, pending availability of funds

IX. Budget summary

2006 up to \$ 50,000

2007 up to \$ 50,000

Total up to \$ 100,000

X. Reviewers:

Tom Czapla, Upper Colorado River Endangered Fish Recovery Program

Angela Kantola, Upper Colorado River Endangered Fish Recovery Program

Robert Muth, Upper Colorado River Endangered Fish Recovery Program

XI. References

None