

**UPPER COLORADO RIVER
ENDANGERED FISH
RECOVERY PROGRAM**

**FISCAL YEAR 2012 & 2013
PROGRAM GUIDANCE**

March 25, 2011

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(ONGOING AND ONGOING-REVISED PROJECT DESCRIPTIONS BY RECOVERY
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INTRODUCTION

This is the guidance for development of the Recovery Program's FY 2012-2013 Work Plan. The Program Director's office developed this guidance on the basis of the [Recovery Program's Recovery Action Plan \(RIPRAP\)](#) and input from Program participants and was subsequently be reviewed, modified, and approved by the Program's technical and Management committees (the Implementation Committee delegated review and approval to the Management Committee). The RIPRAP identifies all the activities currently believed necessary and feasible to recover the endangered fish in the Upper Basin. Thus, annual Program guidance is closely tied to the RIPRAP.

Like the RIPRAP, the guidance is organized by recovery element. In the accompanying Excel spreadsheet, guidance is provided in columns N-Q for ongoing and new projects within each recovery element. Most new projects are identified as contingencies at this time, to be considered if funding becomes available. In some cases, new projects may involve a formal request for proposals (RFP) developed by the Bureau of Reclamation.

This FY 2012-2013 guidance requests proposals for FY 2012-2013 activities; proposed scopes of work are requested for each of the projects listed in the Excel spreadsheet accompanying this guidance (with the exception of any new starts requiring RFP's). Scopes of work should be prepared according to the format provided. Please review this format carefully, especially the explanatory text printed in italics. Scopes of work which do not contain the information and budget detail requested will be returned to the principal investigator for revision. This could prevent the scope from receiving FY 2012-2013 funding consideration because of the tight work plan development schedule.

Scopes of work under recovery elements I-V are due to the Program Director's office NO LATER THAN Friday, April 29, 2011 (this includes scopes of work for capital-funded projects). Submit scopes of work for these projects to the appropriate Program coordinator (see list near end of this section) in Word format by electronic mail. IN ADDITION, submit a courtesy electronic or hard copy of ongoing-revised biological scopes of work to each member of the Biology Committee and water acquisition scopes of work to each member of the Water Acquisition Committee (see lists at end of this section). If you wish, you may provide this courtesy copy by posting it to the fws-coloriver listserver. (The technical committees do not need to see ongoing scopes of work until later in the work plan review process, and these will be sent to them by the Program Director's office.)

For your information, the evaluation form used by the Recovery Program in reviewing and commenting on final draft project reports, the proper format for final draft reports that are submitted to the Biology Committee for review and approval, and the Biology Committee review process for final draft reports may all be found at <http://www.coloradoriverrecovery.org/committees/biology-committee/biology-report-review-process.html>.

Scopes of work for information & education projects (under recovery element VI) also are due April 29 2011, and should be submitted in Word format to Debbie Felker (debbie_felker@fws.gov).

Program management scopes of work (under recovery element VII) are due by July 1, 2011 (in Word format by electronic mail to angela_kantola@fws.gov).

A NOTE ABOUT INFLATION: Due to current economic conditions, the Program's FY 2012 and FY 2013 base budgets are likely to be very similar to FY 2011. Therefore, principal investigators are cautioned to carefully consider the need for and clearly justify any increases in project budgets from 2011 to 2012 and 2013. This relates to *inflationary* increases, not other salary increases that are part of agency policies (but also remember that no Federal inflationary increases will be made through 2012).

Upon receipt of the proposed scopes of work, the Program Director's office will begin working (with technical committees and principal investigators) to review and refine the scopes of work and develop a recommended technical annual work plan. This recommended work plan and refined scopes of work will be submitted by the Program Director to the technical committees for review on June 20. Technical committee comments are then due to the Program Director and the Management Committee by July 15. The recommended Program management work plan also is due from the Program Director to the Management Committee at this time. The Management Committee will meet August 10-11 to discuss the recommended work plans and approve projects for the FY 2012-2013 Work Plan (The Implementation Committee may delegate their review and approval to the Management Committee). If you have any questions about this guidance or the FY 2012-2013 work plan development process, please contact Angela Kantola at 303/969-7322, ext 221, or the appropriate coordinator:

Instream flow protection –Jana Mohrman 303/969-7322 ext. 268, jana_mohrman@fws.gov

Habitat restoration –Tom Czapl (fish passages and screens) 303/969-7322 ext. 228, tom_czapla@fws.gov and Tom Chart (floodplain restoration) 303/969-7322, ext. 226, tom_chart@fws.gov.

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I. INSTREAM FLOW IDENTIFICATION AND PROTECTION

Instream flow activities in FY 2012 and 2013 will be directed toward: 1) ongoing flow and temperature monitoring and hydrology support; 2) augmenting flows in the Green, Yampa, Colorado and Gunnison rivers to help meet Service flow targets; and 3) evaluating flow recommendations (as identified in the 2007 Green River Study Plan, the 2003 Strategic Plan for Geomorphologic Research and Monitoring, and the 2011 Aspinall Study Plan).

Contingency projects have been identified for:

- Aerial photography per Aspinall Study Plan (Continuation of project 156).
- USGS to conduct sediment monitoring in the Gunnison River per Aspinall Study Plan recommendations. (Continuation of project 85-F, aka FR-Sed Mon)
- Release and monitoring of marked larval razorback suckers at the mouth of single breach wetlands to determine a larval fish's ability to access these low flow sites (Vernal-CRFP sampling, LFL identification). (Funded at \$10K in FY11.)
- A new start for the Program Director's office to compile (or contracts to compile) conclusions and recommendations from ongoing FR-Syntheses projects, BOR annual operations reports, and other related studies to provide an update / evaluation of anticipated effects and uncertainties associated with the Flaming Gorge flow and temperature recommendations. (Per Green River Study Plan.)

New Start

Title: White River Management Plan And Programmatic Biological Opinion

RIPRAP Item Number: White River: I.B.3 Develop and implement a White River management plan and I.B.3.a. Conduct programmatic Section 7 and NEPA compliance on recovery actions and a level of future water demand.

Rationale/Problem Statement: Once the White River flow recommendations are complete, a programmatic biological opinion (PBO) will be needed. A White River PBO is expected to be similar to the [Yampa River PBO](#), requiring a management plan to be completed first. A PBO would identify water development the Program can cover, but will need to determine mechanisms to meet flow recommendations (which will primarily describe current conditions, so PBO would address protecting existing flows).

Project Goals and Objectives: Protect flows needed for endangered fish in the White River via a management plan and PBO.

Expected Products: White River management plan and PBO.

Recommended Approach/Methods: Contract for preparation of a White River Management Plan. Proposed action for management plan remains uncertain and will require coordination with CO & UT. The recent Colorado roundtables (SWSI) should provide an estimate of anticipated water development.

Schedule: FY12–13

Cost: ~\$30,000 in FY12 and \$40,000 in FY 13 (Cost estimates need verifying.) (S. 7 funds)

II. HABITAT RESTORATION

The goal of Habitat Restoration is to provide and protect habitat necessary to both achieve and sustain endangered fish recovery. Currently there are three major thrusts under this element of the Recovery Program.

1. Re-open access to historically occupied river sections by restoring fish passage at the following migration barriers:
 - a. Redlands Diversion Dam (selective passage completed 6/96)
 - b. Grand Valley Irrigation Company Diversion (nonselective passage completed 1/98; Obermeyer gate installed in 2006)
 - c. Price-Stubb Diversion Dam (nonselective passage completed 4/08)
 - d. Grand Valley Project Diversion Dam (selective passage completed 8/04)
2. Install fish screens to prevent entrainment of endangered fishes into diversion canals.
 - a. Redlands Diversion Dam (completed 8/05)
 - b. Grand Valley Irrigation Company Diversion (completed 4/02; modified 3/04)
 - c. Grand Valley Project Diversion Dam (completed 8/05)
 - d. Tusher Wash Diversion Dam (dependent on Utah and Green R. Canal Co's decision on whether to raise the dam)
 - e. Yampa River diversion structures, if deemed necessary
3. Restore or enhance natural floodplain functions that support endangered fish recovery.

Supporting actions to reduce or eliminate contaminant impacts also falls under the habitat restoration recovery element. However, contaminants remediation is conducted independently of and funded outside of the Recovery Program. A contingency project has been identified to determine selenium toxicity in razorback sucker (per the Aspinall Study Plan), but in light of Program funding limitations, it is recommended that outside funding be sought for this activity.

A contingency project has been identified for Tusher Wash mortality investigations.

III. REDUCE NONNATIVE FISH AND SPORTFISH IMPACTS

Nonnative fish management activities in FY 2012–2013 will be directed primarily toward: 1) removal/control of problematic nonnative fishes from river reaches occupied by the endangered fishes; 2) evaluation of control efforts; 3) evaluation of species response to nonnative fish management activities; and 4) identification of sources of problematic nonnative fishes.

New Start

Title: Trophic Stable Isotope Analyses To Assess Aquatic Invasive Species Food Web/Contaminant Impacts (*The Recovery Program does not anticipate having funds available for this project, but supports its undertaking by outside entities*)

RIPRAP Item Number: Yampa River: III.B.1.e. Assess food web/contaminant impacts of nonnative aquatic species in the Yampa River.

Rationale/Problem Statement: Program Director's office recommends supporting work outside the Program to implement pilot trophic stable isotope analyses (tissue sampling). A massive shift in energy flow away from native species to invasive species (e.g., crayfish and smallmouth bass) is suspected (if validated, this would support the need to prevent similar ecological impacts in other parts of the basin; Martinez, in review). Part of this work should include exploring role of crayfish in mobilizing mercury into the food web (which may have negative implications for endangered fish reproduction; Crump and Trudeau 2009).

Project Goals and Objectives: Goals: 1) investigate lotic food web inter-relationships between native and nonnative taxa to identify invasive impacts (Kennedy et al. 2005; Layman et al. 2007); 2) examine potential shifts in ecosystem energy flow due to dominance of invasive virile crayfish and smallmouth bass (Vander Zanden et al. 2004, Saito et al 2007); and 3) identify potential role of an invasive species (e.g. virile crayfish) in increasing mercury availability to higher trophic levels (i.e. Colorado pikeminnow; Pennuto et al. 2005, Larsson et al. 2007). Objectives 1) utilize stable isotope techniques, verified with some traditional diet analyses, to identify trophic positions and overlap of community components and estimate proportions of energy flow between native and nonnative species, and 2) perform analyses of mercury of invertebrates and fishes to quantify mercury content and primary or problematic sources of mercury bioaccumulation in consumers and predators.

Expected Products: Increased knowledge, insight and support for concerns and strategies regarding invasive impacts of nonnative species in the Yampa River, and increased impetus to prevent similar impacts from occurring elsewhere in the upper Colorado River basin.

Recommended Approach/Methods: Collect appropriate tissue or diet samples from aquatic or terrestrial food web components as needed for analysis of stable isotope ratios (Martinez et al. 2000; McHugh et al. 2008) or mercury concentrations (Eagles-Smith et al. 2008, Osmundson 2010).

Schedule: FY12–13

Cost: Could ~\$60,000/year (needs verifying); however Program funds are not available in FY 12-13.

Literature Cited:

Crump, K. L., and V. L. Trudeau. 2009. Mercury-induced reproductive impairment in fish. *Environmental Toxicology and Chemistry* 28:895-907.

Eagles-Smith, C. A., T. H. Suchanek, A. E. Colwell, N. L. Anderson, and P. B. Moyle. 2008. Changes in fish diets and food web mercury bioaccumulation induced by an invasive planktivorous fish. *Ecological Applications* 18:A213-A226.

Kennedy, T. A., J. C. Finlay, and S. E. Hobbie. 2005. Eradication of invasive *Tamarix ramosissima* along a desert stream increases native fish density. *Ecological Applications* 15:2072-2083.

Larsson, P., N. Holmqvist, P. Stenroth, O. Berglund, P. Nystrom, and W. Graneli. 2007. Heavy metals and stable isotopes in a benthic omnivore in atrophic gradient of lakes. *Environmental Science and Technology* 41:5973-5979.

Layman, C. A., D. A. Arrington, C. G. Montana, and D. M. Post. 2007. Can stable isotope ratios provide for community-wide measures of trophic structure? *Ecology* 88:42-48.

Martinez, P. J. In review. Rapid expansion of an invasive crayfish in a high desert river: implications for the lotic food web. *Aquatic Invasions*.

Martinez, P. J., B. M. Johnson, and J. D. Hobgood. 2001. Stable isotope signatures of native and nonnative fishes in upper Colorado River backwaters and ponds. *Southwestern Naturalist* 46:311-322.

McHugh, P., P. Budy, G. Thiede, and E. VanDyke. 2008. Trophic relationships of nonnative brown trout, *Salmo trutta*, and native Bonneville cutthroat trout, *Oncorhynchus clarkii utah*, in a northern Utah, USA river. *Environmental Biology of Fishes* 81:63-75.

Osmundson, B., and P. Schrader Gelatt. 2010. Field assessment of mercury exposure to Colorado pikeminnow within designated critical habitat. Projects FFS# 6F54 and DEC# 200860001.1 Interim Report. U. S. Fish and Wildlife Service, Grand Junction, Colorado.

Pennuto, C. M., O. P. Lane, D. C. Evers, R. T. Taylor, and J. Loukmas. 2005. Mercury in the northern crayfish, *Orconectes virilis* (Hagen), in New England, USA. *Ecotoxicology* 14:149-162.

Saito, L., C. Redd, S. Chandra, L. Atwell, C. H. Fritsen, and M. R. Rosen. 2007. Quantifying foodweb interactions with simultaneous linear equations: stable isotope models of the Truckee River, USA. *Journal of the North American Benthological Society* 26:642-662.

Vander Zanden, M. J., J. D. Olden, J. H. Thorne, and N. E. Mandrak. 2004. Predicting occurrences and impacts of smallmouth bass introductions in north temperate lakes. *Ecological Applications* 14:132-148.

IV. PROPAGATION & GENETICS MANAGEMENT

The goals of Propagation and Genetics management are: to prevent immediate extinction of any endangered Colorado River fish stocks; to conserve genetic diversity of wild endangered fish stocks through recovery efforts; to maintain genetic diversity in captive-reared endangered fish broodstock that is similar to that of the wild stock used as founders; and to produce genetically sound offspring for augmentation efforts.

V. RESEARCH, MONITORING, & DATA MANAGEMENT

Population estimates are an important core of the Program’s monitoring efforts. For Colorado pikeminnow, the population estimation schedule is 3 years of sampling followed by 2 years of rest, then repeating. For humpback chub, the schedule is 2 years of sampling followed by 2 years of rest, then repeating.

Population estimates schedule since 2003 by calendar year and projected.

| Species/River | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------------------------|----|----|----|-----------------------|----|-----------------------|----|----|----|----|----|----|----|----|
| C. pikeminnow/ Colorado River | | | | | | | | | | | | | | |
| C. pikeminnow/ Green River | | | | | | | | | | | | | | |
| Humpback Chub/ Yampa | | | | Captive* [*] | | | | | | | | | | |
| Humpback Chub/ Desolation/Grey | | | | s | o | s | | s | o | s | | s | o | s |
| Humpback Chub/ Black Rocks | | | | | s | o | s | | s | o | s | | s | o |
| Humpback Chub/ Westwater | | | | | s | o | s | | s | o | s | | s | o |
| Humpback Chub/ Cataract | | | | | | Catch per Unit Effort | | | | | | | | |

** We currently have humpback chub in captivity from the Yampa and Desolation/Grey populations. The “s” and “o” stand for September and October, respectively, demonstrating the overlap in Federal fiscal years.*

Contingency projects have been identified for:

- Understanding humpback chub declines and taking necessary next steps (cost TBD)
- Razorback remote sensing near the Green River spawning bar.
- Implementing at least the larval portion of a razorback monitoring plan (a draft of this plan is pending this spring). (~\$30K/year.)
- Bonytail monitoring plan (cost TBD)

VI. INFORMATION, EDUCATION, & PUBLIC INVOLVEMENT

A strategic, multi-faceted information and education program is being implemented to: develop public involvement strategies at the beginning of any and all projects; educate target audiences (including the public and elected officials) about endangered fish and increase their understanding of and support for the recovery of these fish at local, state and national levels; provide opportunities for the public to participate in activities that support recovery; and improve communication and cooperation among members of the Recovery Program.

VII. PROGRAM MANAGEMENT

Program management activities for FY 2012-2013 focus on continued planning and coordination of Program activities by the Program Director and staff and by Utah, Colorado, Wyoming, and the Bureau of Reclamation. All of these projects are ongoing.

**COLORADO RIVER RECOVERY PROGRAM
FY 2012-2013 SCOPE OF WORK for:**

Project Number: _____

[Show brief title of project here]

Lead agency:

Submitted by: *[Give name of project manager, give name, address, phone, fax, e-mail of principal investigator]*

Date Last Modified: 4/5/2011 8:07:00 AM *[This field is set to update automatically.]*

Category:

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

Expected Funding Source:

- Annual funds
- Capital funds
- Other *[explain]*

- I. Title of Proposal:
- II. Relationship to RIPRAP: *[Action plan(s), task number(s) and title(s) in the most recent RIPRAP which are correlated with this project. See RIPRAP at <http://www.coloradoriverrecovery.org/documents-publications/foundational-documents/recovery-action-plan.html>]*
- III. Study Background/Rationale and Hypotheses: *[If applicable] [Include description of expected study results and how those results will be integrated into the overall recovery effort.]*
- IV. Study Goals, Objectives, End Product(s): *[Include measurable outcomes and their expected due dates.]*
- V. Study Area: *[Including river miles and sampling dates, if appropriate]*
- VI. Study Methods/Approach: *[Provide a clear description of sampling methods, gear types, numbers and life stages of fish to be collected, statistical analyses to be used, etc.]*
- VII. Task Description and Schedule:
- VIII. Deliverables, Due Dates, and Budget by Fiscal Year:

[Due to current economic conditions, the Program's FY 2012 and FY 2013 base budgets are likely to be very similar to FY 2011. Therefore, principal investigators are cautioned to carefully consider the need for and clearly justify any increases in project budgets from 2011 to 2012 and 2013. This relates to inflationary increases, not other salary increases that are part of agency policies (but also remember that no Federal inflationary increases will be made through 2012).

A note about final reports: authors are to provide electronic versions of draft final reports which can be commented on directly (via track changes or through Adobe, but preferably through track changes in Word -- tip: if a Word file is too large, embedded Excel files can be compressed).]

FY 2012

****Deliverables**

Budget [*Broken out by task and funding target; see budget detail example requirements, attached*]

- Labor
- Travel
- Equipment
- Other

FY 2013

****Deliverables**

Budget [*Broken out by task and funding target; see budget detail example requirements, attached*]

- Labor
- Travel
- Equipment
- Other

FY 2014, etc (for multi-year study)

- IX. Budget Summary: [*Provide total AND break-out by funding target (e.g. station)*]*
- X. Reviewers: [*For new projects or ongoing-revised projects, list name, affiliation, phone, and address of people who have reviewed this proposal.*]
- XI. References:

* Do NOT include overhead costs on funds transferred from Reclamation to the Service.

** A note about deliverables: draft final project reports will be in an electronic format which can be commented on directly (via track changes or through Adobe, but preferably through track changes in Word [if a Word file like this is too large, embedded Excel files can be compressed]).

Scope of Work Budget Detail Requirements

Budgets should be broken down by task, category (at least labor, travel, supplies, and equipment) and funding target. Under "labor," please identify: the type of labor (e.g., project manager, technician, secretary, etc.), the labor rate (per day, per week, or whatever calculation your office uses), and the expected amount of effort (expressed in terms of hours or weeks). If supplies exceed 5% of the project budget, please explain those costs. All equipment expenses for any single item \geq \$1,000 should be itemized and justified.

A NOTE ABOUT INFLATION: Due to current economic conditions, the Program's FY 2012 and FY 2013 base budgets are likely to be very similar to FY 2011. Therefore, principal investigators are cautioned to carefully consider the need for and clearly justify any increases in project budgets from 2011 to 2012 and 2013. This relates to inflationary increases, not other salary increases that are part of agency policies (but also remember that no Federal inflationary increases will be made through 2012).

Example:

FY 2012 Costs:

| | Agency A | Agency B | Contractor | Total |
|---|----------|----------|------------|----------|
| Task 1 | | | | |
| Labor | | | | |
| Proj. mgr (\$1833/wk; 3 wks @ agency A, \$1800/wk; 2 wks @ agency B) | \$5,500 | \$3,600 | \$0 | \$9,100 |
| Technicians (10 wks per agency; \$810/wk @ agency A; \$900/wk @ agency B) | \$8,100 | \$9,000 | \$0 | \$17,100 |
| Travel | | | | |
| Per diem (20 days) | \$600 | \$700 | \$0 | \$1,300 |
| Vehicle (20 days) | \$1,200 | \$1,500 | \$0 | \$2,700 |
| *Equipment | | | | |
| Boat | \$0 | \$12,000 | \$0 | \$12,000 |
| Trailer | \$0 | \$6,000 | \$0 | \$6,000 |
| Motor | \$0 | \$2,000 | \$0 | \$2,000 |
| Electrofishing Unit | \$0 | \$4,000 | \$0 | \$4,000 |
| Supplies | \$700 | \$800 | \$0 | \$1,500 |
| Task subtotal | \$16,100 | \$39,600 | \$0 | \$55,700 |

*Justification: Additional outfitted electrofishing boat and trailer needed for concurrent sampling in two river reaches as required by population estimate protocol. Current equipment inventory of agency B includes only one outfitted electrofishing boat and trailer.

Task 2

| | | | | |
|--|-----|---------|---------|---------|
| Labor | | | | |
| Biologist (2 wks; \$1500/wk @agency B; contractor \$2000/wk) | \$0 | \$3,000 | \$4,000 | \$7,000 |

| | | | | |
|---------------------------------|-----------------|-----------------|----------------|-----------------|
| Technician (3.5 wks @ \$900/wk) | \$0 | \$3,150 | \$0 | \$3,150 |
| Task subtotal | \$0 | \$6,150 | \$4,000 | \$10,150 |
| FY 2012 TOTAL | \$16,100 | \$45,750 | \$4,000 | \$65,850 |

FY 2013 Costs:

| | <u>Agency A</u> | <u>Agency B</u> | <u>Contractor</u> | <u>Total</u> |
|--|-----------------|-----------------|-------------------|-----------------|
| Task 2 | | | | |
| Labor | | | | |
| Proj. leader (2 wks @ Agency B @ \$1800/wk; 3 wks contractor @\$2500/wk) | \$0 | \$3,600 | \$7,500 | \$11,100 |
| Biologist (5 wks at each: \$1500/wk @ agency B; \$2000/wk contractor) | \$0 | \$7,500 | \$10,000 | \$17,500 |
| Task subtotal | \$0 | \$11,100 | \$17,500 | \$28,600 |
| Task 3 | | | | |
| Labor | | | | |
| Biologist (4 wks @ each: \$1500/wk @ agency A&B; \$2000/wk contractor) | \$6,000 | \$6,000 | \$8,000 | \$20,000 |
| Proj. leader (2 wks @ each: \$1833/wk @ agency A; \$1800/wk @ agency B) | \$3,700 | \$3,600 | \$5,000 | \$12,300 |
| Travel | | | | |
| Vehicle (5 days) | \$300 | \$350 | \$300 | \$950 |
| Airfare (1 trip) | \$500 | \$700 | \$650 | \$1,850 |
| Per diem (7 days) | \$210 | \$245 | \$210 | \$665 |
| Equipment | \$0 | \$0 | \$0 | \$0 |
| Supplies | | | | |
| Tags | | \$1,150 | | \$1,150 |
| Glassware | | \$250 | | \$250 |
| Sample bottles | | \$100 | | \$100 |
| Task subtotal | \$10,710 | \$12,395 | \$14,160 | \$37,265 |
| FY 2013 TOTAL | \$10,710 | \$23,495 | \$31,660 | \$65,865 |