

COLORADO RIVER RECOVERY PROGRAM
FY 2010-2011 SCOPE OF WORK for:
Identification and Curation of Larval and Juvenile Fish

Project Number: 15

Lead agency: Larval Fish Laboratory, Colorado State University
Submitted by: Kevin R. Bestgen, Project Manager
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Category:

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

Expected Funding Source:

- Annual funds
 Capital funds
 Other

I. Title of Proposal:

Identification and Curation of Larval and Juvenile Fish by Colorado State University Larval Fish Laboratory.

II. Relationship to RIPRAP:

General Recovery Program Support Action Plan

- V. Monitor populations and habitat and conduct research to support recovery actions (research, monitoring, and data management).
V.A. Measure and document population and habitat parameters to determine status and biological response to recovery actions.
V.B. Conduct research to acquire needed life history information.
V.E. Provide for long-term care, cataloging, and accessibility of preserved specimens.

III. Study Background/Rationale and Hypotheses:

This project provides Larval Fish Laboratory (LFL) taxonomic services for Project 22F, Yampa and Middle-Green Colorado Pikeminnow and Razorback Sucker Larval Abundance.

The project also provides ongoing curation (maintenance and management) of the growing Upper Colorado River Basin (UCRB) portion of the LFL Collection. LFL currently maintains over 4,000,000 UCRB specimens in over 103,000 taxon-specific lots as voucher for Recovery Program and earlier and related UCRB investigations. These collections are an invaluable, long-term, historical resource for future reference and research. Some collections are over quarter century old, dating back to 1976. New collections are cataloged and added to the LFL Collection as they are received or processed by LFL. As the holdings of the LFL Collection become better known, we expect use of UCRB collections will increase substantially, both within and outside the Recovery Program.

As part of the curatorial effort, we continue to pursue arrangements to help ensure collection permanency. In part through the efforts of the principal investigator, preliminary plans continue to develop for administratively and physically consolidating most of the university's Natural History Research Collections (including the LFL Collection) to provide better long-term recognition, support, and facilities for those collections as a functional unit of Colorado State University.

IV. Study Goals, Objectives, End Product(s):

Goal—

- To provide taxonomic and curatorial services for the Recovery Program.

Objectives—

- Support Recovery Program researchers by processing, cataloging, and curating preserved fish in specifically designated sets of collections submitted to LFL under this project, currently collections from Project 22F.
- Provide limited taxonomic services and consultation on taxonomic or collection handling matters to other Recovery Program projects and researchers.
- Catalog and incorporate in the LFL Collection other preserved UCRB specimens deposited by Recovery Program projects and researchers.
- Continue curation (maintenance and management) of all cataloged UCRB specimens in the LFL Collection.
- Identify samples associated with middle Green River drift and backwater sampling project aimed at understanding factors contributing to decline of age-0 Colorado pikeminnow conducted by Utah Division of Wildlife Resources and U. S. Fish and Wildlife Service, Vernal, Utah offices (Task 1b).
- Identify samples associated with increased light trap sampling for razorback suckers in the lower Green River, conducted by Utah Division of Wildlife Resources, Moab, Utah (Task 1c).
- Analyze age-0 smallmouth bass otoliths from the Colorado River (Task 1d).

End Products—

- Annual project reports.
- Collection data for Project 22F researchers, and newly implemented studies in the middle Green and lower Green River, tasks 1b and 1c, and the Colorado River, Task 1d.
- Other determinations of specimen identity and related.
- Incorporation of processed Project 22F and other deposited UCRB collections in the LFL Collection and catalog.
- Continued maintenance and management of, and access to, the growing cataloged collection of preserved fish which serve as voucher for Recovery Program investigations and provide a long-term resource for future Recovery Program, and other public, reference and research.

V. Study Area:

The Recovery Program collections identified, processed, and curated by LFL were or will be collected from cool to warm-water reaches of the UCRB, generally exclusive of the San Juan River subbasin.

VI. Study Methods/Approach:

Taxonomic Services—We will identify preserved specimens (mostly larvae) collected under Project 22F and process, catalog, and curate those collections as part of the LFL Collection. Limited taxonomic services and related consultation for other Recovery Program projects and researchers will be provided as needed.

Ongoing Curation—The LFL Collection will continue to serve as the depository for larval and other small fish from preserved Recovery Program collections. Methods for receiving, accessioning, cataloging, maintaining, and managing use of these preserved specimens are provided in our draft "Larval Fish Laboratory Collection Policies and Procedures Manual" (Appendix II, Snyder 1996), as adapted for our SPECIFY Collection management system. We will respond to internal and external requests for collection information and use of specimens; Recovery Program approval will be required for any destructive use or transfer of endangered or rare species. We will continue our effort to ensure collection permanency, in part through planned consolidation of Colorado State University Natural History Research Collections.

VII. Task Description and Schedule:

Task 1: Taxonomic Services—As soon as possible after receipt of collections or requests for limited taxonomic assistance or advice, adding new tasks 1b, 1c, and 1d as described above in Objectives.

Task 2: Ongoing Curation—As needed throughout each fiscal year.

VIII. Deliverables, Due Dates, and Budget by Fiscal Year:

FY 2010:

Deliverables and Due Dates:

- LFL will record and submit collection data to Project 22F researchers (Task 1a) and others under newly implemented studies in the middle Green (Task 1b), lower Green River (Task 1c), and Colorado River (Task 1d) as soon as the collections are processed.
- Other taxonomic determinations and related information will be conveyed to the responsible researchers as soon as possible after it is available.
- Annual report—November 2010.

Budget

<u>Task 1a (Taxonomic Services)</u>	<u>LFL</u>
Labor	
Principal Investigator/Taxonomist (\$6,832/mo. ^b ; 0.77 mo.)	\$5,261
Research Associates (\$3,291/mo. ^b ; 2.57 mo.)	8,454
Work-study Technicians (\$1,827/mo. ^c ; 0.3 x 1.5 mo.)	821
Supplies ^c	430
Task 1a Subtotal (Direct Costs)	14,966
<u>Task 2 (Ongoing Curation)</u>	
Labor	
Principal Investigator/Curator (\$6,832/mo. ^b ; 3.62 mo.)	\$24,725
Research Associate/Collection Manager (\$3,291/mo. ^b ; 2.57 mo.)	8,454
Work-study Technicians (\$1,827/mo. ^c ; 0.3 x 1.0 mo.)	548
Travel ^d	900
Supplies ^e	737
Task 2 Subtotal (Direct Costs)	35,364
<u>FY 2010 Subtotal</u>	
Subtotal Direct Costs (Tasks 1a and 2)	\$50,330
Indirect Costs (17.5% on total direct costs) ^f	8,808
Subtotal	59,138

^a Annual estimated increases in fringe benefit rates (generally + 0.5%) and salary and other expenses (x 4%) are specified by the University Office of the Vice President for Research and Information Technology in its current Proposal Budget Spreadsheet.

^b Salary plus fringe benefits.

^c 30% of wages, rest subsidized by work-study program.

^d Annual UCRP Researchers Meeting, 3 nights, 2 persons, personal or lab vehicle.

^e 80% vials, jars; 10% preservative, labels, etc.; 10% computer and lab supplies.

^f Assumes continuance of current memorandum of understanding (MOU) through which Colorado State University and the Bureau of Reclamation agreed to a reduced indirect cost rate of 17.5% with the university waiving the remainder of its standard 47% indirect cost rate as its contribution to the project.

FY-2010 tasks 1b, 1c, and 1d: The amounts below (\$57,541) are in addition to the normal amount for standard curation and identification costs to cover costs associated with sample identification for two new sampling projects, as well as otolith analyses in the Colorado River, as described above in tasks 1b, 1c, and 1d.

Budget: ^a

Task 1b, Middle Green River sample analysis (Taxonomic Services)
LFL

Labor	
Principal Investigator/Taxonomist (\$6,832/mo. ^b ; 1.1 mo.)	\$7,515
Research Associates (\$3,291/mo. ^b ; 3.5 mo.)	11,519
Work-study Technicians (\$1,827/mo. ^c ; 1.3 x 1.5 mo.)	3,563
Supplies ^c	750
Task 1b, Subtotal (Direct Costs)	23,347

Task 1c, Lower Green River light trap samples (Taxonomic Services)
LFL

Labor	
Principal Investigator/Taxonomist (\$6,832/mo. ^b ; 0.75 mo.)	\$5,125
Research Associates (\$3,291/mo. ^b ; 2 mo.)	6,582
Work-study Technicians (\$1,827/mo. ^c ; 0.3 x 1.5 mo.)	821
Supplies ^c	330
Task 1c, Subtotal (Direct Costs)	12,858

Task 1d, Amended, Colorado River smallmouth bass otolith sample analysis
LFL

Labor	
Principal Investigator (\$6832/mo. ^b ; 0.5 mo.)	\$3,416
Research Associates (\$3,291/mo. ^b ; 2.34 mo.)	7,686
Work-study Technicians (\$1,827/mo. ^c ; 0.5 mo.)	914
Supplies ^c	750
Task 1d, Subtotal (Direct Costs)	12,766

Task 1b + 1c + 1d Subtotal (Direct Costs) 48,971

FY 2010 subtotal

Subtotal Direct Costs (Tasks 1b, 1c, and 1d)	\$48,971
Indirect Costs (17.5% on total direct costs)	8,570
Subtotal	57,541

FY-2010 Grand total (tasks 1a, 1b, 1c, 1d, and 2) \$116,679

FY-2011:

Deliverables and Due Dates:

- LFL will record and submit collection data to Project 22F researchers (Task 1a) and others under newly implemented studies in the middle Green (Task 1b), lower Green River (Task 1c), and Colorado River (1d) as soon as the collections are processed.
- Other taxonomic determinations and related information will be conveyed to the responsible researchers as soon as possible after it is available.
- Annual report—November 2011.

Budget: ^a

Task 1a (Taxonomic Services)	LFL
Labor	
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Work-study Technicians (\$1,827/mo. ^c ; 0.3 x 1.5 mo.)	821
Supplies ^c	430
Task 1a Subtotal (Direct Costs)	<u>14,966</u>
Task 2 (Ongoing Curation)	
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Labor	
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Research Associate/Collection Manager (\$3,291/mo. ^b ; 2.57 mo.)	8,454
Work-study Technicians (\$1,827/mo. ^c ; 0.3 x 1.0 mo.)	548
Travel ^d	900
Supplies ^e	737
Task 2 Subtotal (Direct Costs)	<u>35,364</u>
FY 2011 subtotal	
Total Direct Costs (tasks 1a and 2)	\$50,330
Indirect Costs (17.5% on total direct costs) ^f	8,808
Subtotal	<u>59,138</u>

Footnotes as for FY 2010.

FY-2011 tasks 1b, 1c, and 1d: The amounts below (\$57,541) are in addition to the normal amount for standard curation and identification costs to cover costs associated with sample identification for two new sampling projects, as well as otolith analyses in the Colorado River, as described above in tasks 1b, 1c, and 1d.

Budget: ^a

Task 1b, Middle Green River sample analysis (Taxonomic Services)	
LFL	
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Labor	
Principal Investigator/Taxonomist (\$6,832/mo. ^b ; 1.1 mo.)	\$7,515
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Work-study Technicians (\$1,827/mo. ^c ; 1.3 x 1.5 mo.)	3,563
Supplies ^c	750
Task 1b, Subtotal (Direct Costs)	<u>23,347</u>
Task 1c, Amended, Lower Green River light trap samples (Taxonomic Services)	
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Labor	
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Work-study Technicians (\$1,827/mo. ^c ; 0.3 x 1.5 mo.)	821
Supplies ^c	330
Task 1c, Subtotal (Direct Costs)	<u>12,858</u>
Task 1d, Amended, Colorado River smallmouth bass otolith sample analysis	
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Supplies ^c	750
Task 1d, Subtotal (Direct Costs)	<u>12,766</u>
Task 1b + 1c + 1d Subtotal (Direct Costs)	<u>48,971</u>

FY 2011 subtotal	
Total Direct Costs (Tasks 1b, 1c, 1d)	\$48,971
Indirect Costs (17.5% on total direct costs)	8,570
Subtotal	<u>57,541</u>

FY-2011 Grand total (tasks 1a, 1b, 1c, 1d, and 2) \$116,679

Budget notes: We maintained costs in 2010 and 2011 similar to those for 2009, except for the slightly increased overhead rates which began in later 2009 (increase of 2.5% to 17.5%). We will assess costs of additional tasks 1b, 1c, and 1d, after 2009 sample work is completed to assess if the amounts requested are appropriate.

Budget Summary

FY 2010	\$116,679
FY 2011	<u>\$116,679</u>
Total	\$233,358

IX. Reviewers: (Not applicable—ongoing project)

X. References:

Snyder, D. E. 1996. Preserved larval and small-fish collections of the Upper Colorado River Basin: maintenance and cataloging of a valuable historical database. Final Report of the Larval Fish Laboratory, Colorado State University, to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin, U.S. Fish and Wildlife Service, Denver, Colorado. (24 April 1996).
