

- I. Project Title: **Identification and Curation of Larval Fish by Colorado State University Larval Fish Laboratory.**
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- III. Project Summary: This ongoing project provides for (1) the identification, processing, and cataloging of preserved fish collections from the Interagency Standardized Monitoring Program (ISMP) for fall young-of-the-year pikeminnow in Utah and Colorado and (2) the ongoing curation of the growing Upper Colorado River Basin (UCRB) portion of the LFL Collection. We processed 21 preserved fall 2001 ISMP collections (116 lots). We also added 1,816 lots of fish (1,739 lots associated with UCRB) to the Larval Fish Laboratory (LFL) Collection, and modified 12 prior UCRB records during October 1, 2002, through September 30, 2003. We now maintain and manage 82,082 cataloged lots of fish (2,886,661 specimens), over 98% of which (80,582 lots, 2,851,687 fish) were collected or reared for UCRB investigations since 1975.
- IV. Study Schedule: Fall ISMP collections are processed and the resultant data provided to the source agencies and Interagency Database Management Program (IDMP) soon after the collections are received. General collection maintenance activities (e.g., fluid level and container checks) are conducted early each fiscal year; other maintenance concerns are addressed as needed. Collection management, including response to requests for loans, is ongoing as needed.
- V. Relationship to 2003 RIPRAP:  
General Recovery Program Support Action Plan (pg 24)
  - 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.A.1. Conduct interagency data management program to compile, manage, and maintain all research and monitoring data collected by the Recovery Program
  - V.E. Provide for long-term care, cataloging, and accessibility of preserved specimens
- VI. Accomplishments of FY 2003 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings: The FY 2003 goals and objectives of this ongoing project are being met.

A replacement for our old cataloging computer has finally been purchased and conversion of the LFL collection catalog and management program from DOS-based MUSE to Windows-based SPECIFY (using Microsoft's SQL database engine) is well underway. The full catalog database has been converted to SPECIFY and we are in the processing of proofing the conversion before completing the switch and adding any new records. Delivery of updated printed and *dBase* or *Access* versions of the collection catalog to the Interagency Database Management Program (IDMP) has been deferred to FY2004. No additional funding will be required for these delayed tasks.

Fall 2002 ISMP collections were identified, counted, measured, cataloged, and stored, and the resultant data recorded in databases and summarized on schedule (see Appendix A for summary of results). A printed data report and copies of the associated computer database files (*dBase*) for those collections were submitted in May 2003 to the source agency, U.S. Fish and Wildlife Service (USFWS, Grand Junction, Frank Pfeifer and Charles McAda) and the database files to IDMP (Charles McAda). No ISMP collections were received from Utah in FY 2003 (according to Michael Hudson, UDWR, Moab, all collections were field processed).

Curation of larval and other small-fish collections in FY 2003 included: (1) annual fluid-level and container checks for over 80,500 lots of preserved UCRB specimens, (2) maintenance of the collection catalog, and (3) management of access to specimens and associated data. Appendix B lists the study-year sets of UCRB collections that were cataloged during FY 2003.

Efforts to assure the future permanency of the collection continued in FY 2003. In July, LFL, together with other Colorado State University Natural History Research Collections, submitted a proposal to the National Science Foundation for integration of our various collections in more spacious campus facilities (annex to the new CSU Center for the Arts, old Fort Collins High School) to be renovated specifically for these collections. If funded, the project will cover the move of the collections to the new facilities, new compactor shelving for each collection, backlog cataloging of collections (non-UCRB holdings for the LFL Collection), and networking and public access to selected collection catalog data over the Internet.

- VII. Recommendations: We recommend continued annual support of Project 15 with sufficient funds for processing newly preserved collections covered by this project (beginning in FY 2004, collections from Project 22F, Yampa and Middle-Green Colorado Pikeminnow and Razorback Sucker Larval Abundance ) and on-going maintenance and management (curation) of all UCRB specimens held by LFL.
- VIII. Project Status: On-track and ongoing.

IX. FY 2003 Budget Status

- A. Funds Provided: \$41,365
- B. Funds Expended: \$23,877 (as of Nov. 12)
- C. Difference: \$17,488 (Logistical delays—see Section VI, Paragraph 1)
- D. Percent of the FY 2003 work completed, and projected costs to complete:  
58%, \$17,488
- E. Recovery Program funds spent for publication charges: \$0

X. Status of Data Submission (Where applicable): Preserved fish data for Fall 2002 ISMP collections were submitted on May 28, 2003, in a printed data report and *dBase* files to USFWS in Grand Junction, and as *dBase* files to IDMP. Preparation of updated printed and *dBase* or *Access* versions of the LFL Collection catalog (selected fields) and submission of same to IDMP have been delayed until FY2004.

XI. Signed: Darrel E. Snyder November 12, 2003  
Principal Investigator Date

Signed: Sean C. Seal November 12, 2003  
Principal Investigator Date

Signed: Kevin R. Bestgen November 12, 2003  
Principal Investigator Date

## APPENDIX A:

Copy of summary text of results from LFL data report submitted to USFWS on May 28, 2003 for preserved fall ISMP seine collections, Colorado River, 1-10 October 2002.

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This report covers the preserved fishes in 21 collections taken during the 2002 fall monitoring program (ISMP) from the Colorado River in Colorado (river miles 182.0-146.1 above the confluence with the Green River; collection numbers CO01 to CO12 and CO14 to CO22). It is a printed version of the *dBase* files "02YOY.DBF" (fish data and length frequencies) and "02YOYES.DBF" (total lengths and dorsal and anal fin-ray counts for chubs, *Gila* spp.), and an associated file of field-collection data "COYOYC02.DBF" (without record for CO06), all of which are provided on an enclosed diskette (inside back cover). Included on the following pages are individual collection data (pages 2-5), an overall summary by species (page 6), a list of chub captures with individual total lengths and dorsal and anal fin-ray counts (page 7), comments in database records including total lengths for specimens greater than 90 mm TL (page 8), and a list of table and species abbreviations used in this or other Upper Colorado River Basin reports and databases (pages 9-10). The specimens have been cataloged (LFL# 82431-82546) and stored as part of the Larval Fish Laboratory Collection for voucher and future study (e.g., identification of humpback chub, food habits, condition, parasites).

The collections contain 20,136 preserved fish (an average of 959 specimens per collection) representing six families and fourteen species. Overall, just 0.1% of the fish are native species (15 cyprinid and 2 catostomid specimens). Cyprinids (6 species, 2 native) comprise 97%, catostomids (3 species, 2 native) nearly 0%, and other families (4 species) 3% of all identifiable fish received. Species comprising 1% or more of all preserved fish are fathead minnow 40%, red shiner 31%, sand shiner 25%, and western mosquitofish 3%.

A total of 14 chub (*Gila* species, 42-67 mm TL) were preserved in these collections. Ten chub have dorsal and anal fin ray counts of 9 and 9, respectively, and are probably roundtail chub. The remaining four specimens have dorsal and anal fin ray counts of 9 and 10, respectively, and could be humpback chub.

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APPENDIX B:

Study-year sets of Upper Colorado River Basin collection-species lots cataloged as part of the Colorado State University Larval Fish Laboratory Collection from October 1, 2002 through September 30, 2003 (1,816 lots).

Beginning Cat. No.	Field Numbers	Description of Sample Sets
80820	LFL-91GR-8033 to 8083	91 Larvae,DR,Green R.,Echo Pk, DNM,CO*
80870	LFL-94YA-6281 to 8053	94 Larvae, DR, Yampa Echo Pk, DNM, CO
81137	(non-UCRB collections)	
81190	LFL-CULTLN01A01-B53	Longnose sucker, Reference Series, Cultured
81529	LFL-94GRU-6291 to 8093	94 Larvae, Drift Net, Green R., Jensen, UT
82017	LFL-95GRL-6243 to 8263	95 Larvae, DR, Green R., Green River, UT
82167	LFL-94GRU-704A3	94 Larvae, Drift Net, Green R., Jensen, UT*
82168	LFL-95GRL-8073	95 Larvae, DR, Green R., Green River, UT*
82169	FWS/GJ-GU02-L01 to L65	02 Larvae, RZ, SN & LT, Gunnison R., CO
82431	FWS/GJ-02Y-CO01 to CO22	02 YOY, Fall ISMP, Seine, Colorado R., CO
Sets of UCRB specimens filling in gaps between prior catalog numbers.		
63182 to 87	LFL-94GRL-6171 var. to 7211	94 Larvae, DR, Green R., Green R., UT*
63188	CDOW-82Y-562	82 YOY, Seine, upper Yampa R, CO*
67220 to 60	LFL-CULT-LN7909 to 39	79 Longnose Sucker Study Series, Cultured
67261 to 78	FWS/GJ-95Y-GU05 var. to 33	95 YOY, Fall Seine, Gunnison R., CO**
70570	LFL-94GRL-7211	94 Larvae, DR, Green R., Green R., UT*
76800	LFL-92YA-725SN	92 Larvae,SN,Yampa R,Echo Pk,DNM,CO*
77040 to 44	LFL-92YA-709S1 var. to 730S	92 Larvae,SN,Yampa R,Echo Pk,DNM,CO*
77728	LFL-93YA-7061	93 Larvae,DR,Yampa R,Echo Pk,DNM,CO*
78003	LFL-CULTLN01B54	01 Longnose Sucker Ref. Series, Cultured*
79160	FWS/V-01RZ-081	01 RZ Light Trap, Green R., Cliff Ck,UT***

\* Additional lots belonging to a previously cataloged sample set.

- \*\* Longnose sucker specimens removed from LFL 6703, 6758, 6799, 6899, 26520, 26647 and individually cataloged as developmental study specimens.
- \*\*\* Specimen reidentified from LFL 80454.