

- 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 71 preserved fall 2001 ISMP collections (311 lots). We also added 1,326 lots of fish to the Larval Fish Laboratory (LFL) Collection through September 30, plus 1,296 lots through 18 November, and now maintain and manage over 79,500 lots of UCRB fish collected and preserved since 1976 (an estimated 3.975 million specimens).
  
- 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 (e.g., fluid level and container checks) is conducted early each fiscal year; other maintenance concerns are addressed as needed. Collection management is ongoing as needed.
  
- V. Relationship to RIPRAP: This project is related to General Recovery Program Support Action Plan V (monitor populations and habitat and conduct research to support recovery actions, research, monitoring, and data management). Identification and processing of ISMP collections contribute to Tasks V.A. (measure and document population and habitat parameters to determine status and biological response to recovery actions) and V.A.1 (conduct standardized monitoring program). The remainder of the project specifically addresses Task V.E (provide for long-term care, cataloging, and accessibility of preserved specimens) and, in that preserved specimens are the ultimate natural history database, contributes to Task V.A.2 (conduct interagency data management program to compile, manage, and maintain all research and monitoring data collected by the Recovery Program).

VI. Accomplishments of FY 2002 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings: The FY 2002 goals and objectives of this ongoing project are being met. However, as part of ongoing curation, replacement of the cataloging computer and conversion of the LFL collection catalog and management program from DOS-based MUSE to Windows-based SPECIFY have been delayed for logistical reasons (new computer was originally budgeted for FY2001). Similarly, delivery of updated printed and *dBase* versions of the collection catalog to the Interagency Database Management Program (IDMP) has been deferred to FY2003. No additional funding will be required for these delayed tasks.

Fall 2001 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). Printed data reports and copies of computer database files (*dBase*) for these collections were submitted in March 2002 to the source agencies, Utah Division of Wildlife Resources (UDWR, Moab, Michael Hudson) and U.S. Fish and Wildlife Service (USFWS, Grand Junction, Frank Pfeifer and Charles McAda); copies of the database files also were submitted to IDMP (Charles McAda).

Curation of larval and other small-fish collections in FY 2002 included: (1) annual fluid-level and container checks for over 77,000 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 2002, and subsequently through November 18, 2002.

Efforts to assure the future permanency of the collection continued in FY 2002. Prospects remained promising through spring 2002 for a move of the LFL Collection, along with other Colorado State University natural history research collections, to campus facilities to be renovated specifically for these collections. However, state and university budget cuts made since last spring have indefinitely postponed these plans. Associated efforts to establish a combined administrative unit and budget for all university collections have also been stymied.

VII. Recommendations: We recommend continued annual support of Project 15 with sufficient funds for processing newly preserved collections covered by this project (currently just fall ISMP collections) and on-going maintenance and management (curation) of all UCRB specimens held by LFL.

VIII. Project Status: On-track and ongoing.

IX. FY 2002 Budget Status

- A. Funds Provided: \$41,400
- B. Funds Expended: \$12,811 (\$19,048 as of Nov. 23)

- C. Difference: \$28,588 (\$22,352 as of Nov. 23; Logistical delays—see Section VI, Paragraph 1)
  - D. Percent of the FY 2002 work completed, and projected costs to complete: 31%, \$28,588 (46%, \$22,352 as of Nov. 23).
  - E. Recovery Program funds spent for publication charges: \$0
  - X. Status of Data Submission (Where applicable): Preserved fish data for Fall 2001 ISMP collections were submitted on March 5, 2002, in a printed data report and *dBase* files to the Utah Division of Wildlife Resources and USFWS, and as *dBase* files to IDMP. Preparation of updated printed and *dBase* versions of the LFL Collection catalog (selected fields) and submission of same to IDMP have been delayed until FY2003.
- XI. Signed: Darrel E. Snyder November 26, 2002  
Principal Investigator Date
- Signed: Sean C. Seal November 26, 2002  
Principal Investigator Date
- Signed: Kevin R. Bestgen November 26, 2002  
Principal Investigator Date

## APPENDIX A:

Brief summary of results for preserved fall ISMP seine collections, Colorado River and lower Green River, September 2-19, 2001 (extracted from LFL data report submitted to responsible agencies on March 5, 2002).

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This report covers the preserved fishes in 71 collections taken during the 2001 fall monitoring program (ISMP)—40 from the Colorado River in Colorado (upper Colorado River reach, UCRR, river miles 182.0-130.2 above the confluence with the Green River, collection numbers UC02 to UC44), 11 from the Colorado River in Utah (lower Colorado River reach, LCRR, river miles 108.8-6.1 above the confluence with the Green River, collection numbers CO17-CO70), and 20 from the lower Green River in Utah (lower Green River reach, LGRR, river miles 119.0-2.5, collection numbers GR01-GR67). It is a printed version of the *dBase* files "01YOY.DBF" (collection data and length frequencies) and "01YOYES.DBF" (individual total lengths for endangered species such as Colorado pikeminnow and total lengths and dorsal and anal fin-ray counts for chubs, *Gila* spp.), and an associated file of collection data transcribed from field sheets, "01YOYCD.DBF", all of which are provided on an enclosed diskette (inside back cover). Included on the following pages are individual collection data (pages 3-13), an overall summary by species for each reach (pages 14-16) and all reaches combined (page 17), a list of Colorado pikeminnow captures with individual total lengths (page 18), a list of chub captures with individual total lengths and dorsal and anal fin-ray counts (pages 19-20), comments for database records including total lengths for specimens greater than 90 mm TL (page 21), and a list of table and species abbreviations used in this or other Upper Colorado River Basin reports and databases (pages 22-23). The specimens have been cataloged (79161-79471) 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).

In all, the collections received contain 43,767 preserved fish (an average of 616 specimens per collection) representing six families and seventeen species. Of those fish, 10,859 are from UCRR, 17,501 from LCRR, and 15,407 from LGRR. Overall, just 0.1% of the fish are native species (30 cyprinid and 7 catostomid specimens)—0.3% for UCRR (22 cyprinids, 7 catostomids) and nearly 0% for both LCRR and LGRR (4 cyprinids each). Cyprinids (8 species, 3 native) comprise 98%, catostomids (3 species, 2 native) nearly 0%, and other families (6 species) 2% of all identifiable fish received. The respective percentages for UCRR are 92%, nearly 0%, and 8% and for both LCRR and LGRR nearly 100%, 0% (no specimens), and nearly 0%. Species comprising 1% or more of all preserved fish are red shiner 47%, fathead minnow 28%, sand shiner 22%, and western mosquitofish 2%. Those comprising at least 1% of preserved collections taken with each reach are: UCRR—fathead minnow 43%, red shiner 37%, sand shiner 11%, and western mosquitofish 8%; LCRR—sand shiner 40%, fathead minnow 35%, red shiner 23%, and unidentified minnows 1%; and LGRR—red shiner 81%, fathead minnow 10%, and sand shiner 8%.

A total of 3 Colorado pikeminnow were preserved in these collections. Two specimens (31 and 43 mm TL) were collected from LCRR at river mile 32.0, and a single specimen (24 mm TL) was collected from LGRR at river mile 12.1.

A total of 20 chub (*Gila* species, 33-60 mm TL) were also preserved in these collections. Nineteen specimens (33-60 mm TL) were collected from UCRR at river miles 180.5 to 134.9, and a single specimen (43 mm TL) was collected from LCRR at river mile 27.5. No chub were collected from LGRR. Sixteen chub have dorsal and anal fin ray counts of 9 and 9 or 8 (1 specimen), respectively, and are probably roundtail chub. The remaining four specimens have dorsal and anal fin ray counts of 9 or 8 (1 specimen) 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 11, 2001 through September 30 (1,326 lots) and November 18, 2002 (2,622 lots).

Beginning Cat. No.	Field Numbers	Description of Sample Sets
78755	(non-UCRB collections)	
78766	LFL-94GRL-6161 to 8071	94 Larvae, Drift Net, Lower Green R.
79156	(unused)	
79161	FWS-GJ-01Y-UC02 to UC44	01 YOY, Fall ISMP, Seine, Colorado R., CO
79350	FWS-GJ-01Y-GR01 to GR67	01 YOY, Fall ISMP, Seine, Green R. UT
79421	FWS-GJ-01Y-CO17 to CO70	01 YOY, Fall ISMP, Seine, Colorado R., UT
79472	LFL-01YA-6281 to 8083	01 Larvae, DR, Yampa R., Echo Park, DNM, CO (non-CS specimens)
79807	LFL-01GR-6291 to 8082	01 Larvae,DR, Green R., Echo Pk.,DNM,CO
79835	LFL-01YA-6282 to 8031	01 Larvae,DR, Yampa R., Echo Pk.,CO (CS)
79922	(non-UCRB collections)	
80274	FWS/V-01RZ-001 to 091	01 RZ Light-trap, Green R., UT
(collections below cataloged Oct. 1 through 18 Nov. 2002)		
80536	(non-UCRB collections)	
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

Beginning Cat. No.	Field Numbers	Description of Sample Sets
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	(next set to be cataloged)	

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