

I. Project Title: **Lower Green River Colorado Pikeminnow Population Estimate**

II. Principal Investigator(s):

Lead Agencies: Larval Fish Laboratory, CSU, Utah Division of Wildlife Resources, U.S. Fish and Wildlife Service

Jointly Submitted by: Larval Fish Laboratory, CSU, Utah Division of Wildlife Resources, U.S. Fish and Wildlife Service

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III. Project Summary:

Sampling conducted during this project is designed to obtain capture-recapture data needed to estimate abundance of Colorado pikeminnow *Ptychocheilus lucius* in the lower Green River downstream of the White River. Abundance estimates of endangered Colorado pikeminnow are

needed to better monitor population status and provide benchmarks against which progress toward recovery can be measured. Sampling began in spring 2001 and continued in 2002, with U. S. Fish and Wildlife Service responsible for the reach of the Green River from the White River downstream to Tusher Diversion and the Utah Division of Wildlife Resources responsible for the Green River reach from Tusher downstream to the Colorado River River. The Larval Fish Laboratory will provide coordination, data checking, and data analysis assistance. Our primary goal was to capture, mark, and recapture as many Colorado pikeminnow as possible on at least three different sampling occasions in each river reach. Sampling occurred during spring runoff and ended before pikeminnow spawning migration. Electrofishing was the primary sampling gear. Captured pikeminnow were scanned for the presence of a PIT tag, and unmarked fish were marked. In 2001, a total of 574 Colorado pikeminnow captures were recorded. In 2002, a total of 352 Colorado pikeminnow captures were recorded. These data will be used to obtain abundance estimates for each river reach.

IV. Study Schedule:           Initial Year    2001  
  Final year     2003

V. Relationship to RIPRAP (*Version: March 8, 2000*):

- V. Monitor populations and habitat and conduct research to support recovery actions (research, monitoring, and data management)
- V.B. Conduct research to acquire needed life history information
- V.B.2. Conduct appropriate studies to provide needed life history information.

VI. Accomplishment of FY 2002 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Goal: Obtain a reasonable (confidence intervals of less than 20% of estimate) estimate of the adult population abundance and survival of Colorado pikeminnow occupying the lower Green River study area.

Task description and schedule:

Task 1. Three sample passes through section 1 (confluence with White River to Tusher Wash Diversion) using 2 electrofishing rafts, and marking and recapturing Colorado pikeminnow  $\geq 250$  mm TL; complete task within 50 days after starting. Sampling occurred in spring.

Task 2. Three sample passes through section 2 (Tusher Wash Diversion to confluence with

Colorado River) using 2 electrofishing boats, and marking and recapturing Colorado pikeminnow  $\geq 250$  mm TL; complete task within 50 days after starting. Sampling occurred in spring.

Task 3. After first year, analyze data, consult with statistician, and alter sampling design if necessary.

Task 4. Data entry, data analysis, consult with statistician, write annual report.

Task 5. Sampling team coordination, data entry, and analysis.

All tasks were met in year 2002. Initial discussions by agency teams refined the methodology for sampling. Standard data sheets and the Standard Operating Procedure Manual used for the middle Green River abundance estimation project (22i) were sent to all field personnel (Tasks 1,2, 4, and 5). The Manual provided an overview of the work, the sampling approach, endangered fish handling and tagging procedures and standardized data forms. Periodic updates among crews during the sampling period allowed a refined approach to sampling (Task 5). Crews also had to equip and rig equipment specific for the sampling approach (Task 2). Three sampling passes were completed for the Desolation-Grey Canyon reach and three passes were completed in the lower Green River sampling reach as planned (Task 3).

Sampling occurred from late-March to mid-June, 2002 (Table 1). In 2001, electrofishing effort included 161 hrs in the Deso-Grey reach for sampling passes one and three and 318 hrs for all four sampling passes in the lower Green River. In 2002, electrofishing effort included 230 hrs in the Deso-Grey reach for all sampling passes, and 247 hrs for the three sampling passes in the lower Green River. In 2001, total Colorado pikeminnow captures recorded during all passes was 574, 308 from the Deso-Grey reach and 266 from the lower Green reach. Recaptures of Colorado pikeminnow from the Deso-Grey and lower Green River reaches totaled 26 and 28 events, respectively and include only fish handled on previous 2001 sampling passes. In 2002, total Colorado pikeminnow captures recorded during all passes was 352, 137 from the Deso-Grey reach and 215 from the lower Green reach. Recaptures of Colorado pikeminnow from the Deso-Grey and lower Green River reaches totaled 38 and 44, respectively, and represent fish handled on previous 2002 sampling passes and those tagged in previous years. The number of recaptures of fish captured and released in all passes in 2002 totaled 7 each of the Deso-Grey and lower Green River reaches.

All data reported here are preliminary and subject to change after all data forms and data files are scrutinized for errors and clarified.

Prior to final data analysis and development of abundance estimates, we need to establish a firm

definition of what we and the Program considers the length of an adult Colorado pikeminnow to be included in estimates of adult fish abundance. This issue is important because abundance and recruitment levels defined in Recovery Goals are for fish of a certain length or age. Resolution of this issue will ensure that abundance estimates are calculated using the correct length- or age-group of fish.

VII. Recommendations:

Data will be evaluated as per task 5 to determine if sampling methods were adequate to obtain unbiased and relatively precise estimates of abundance of Colorado pikeminnow.

VIII. Project Status:

This project will continue in 2003 and should be considered “*On Track and On-going*”.

IX. FY 2001 Budget Status

- A. Funds Provided: \$147,000
- B. Funds Expended: \$141,000
- C. Difference: \$6,000, some data verification and analysis remains to be accomplished.
- D. Percent of the FY 2002 work completed, and projected costs to complete: 90% complete, no additional funds needed to finish project.
- E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission (Where applicable):

PIT Tag data files will be submitted by individual agencies (USFWS, UDWR) by January 2003.

XI. Signed: Kevin R. Bestgen 12-16-2002  
Reporting Principal Investigator Date

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Attachment: Table 1.

Table 1. Sampling dates and effort for lower Green population of Colorado pikeminnow, 2002. These data are preliminary and subject to change.

	Dates	Days Sampled	River Miles Sampled	Total Effort (hours)			Number of Pikeminnow Captured <sup>1</sup>
				Trammel/ Electro- fishing	Fyke Nets	Electro- fishing	
<b>Deso-Grey</b>							
Trip 1	March 23 - Apr	9	246 - 129	0	0	81	47
Trip 2	April 20 - May 7	7	246 - 129	0	0	80	41
Trip 3	May 11 - May 17	7	246 - 129	0	0	69	49
Totals		23				230	137
<b>Lower Green</b>							
Trip 1	April 7 - 17	9	120 - 1.5	0	0	86	59
Trip 2	April 21 - May 1	9	120 - 1.5	0	0	88	95
Trip 3	May 5 - May 15	9	120 - 1.5	0	0	73	61
Totals		27 days				247	215

<sup>1</sup> Total number of Colorado pikeminnow captured includes recaptures.