

COLORADO RIVER RECOVERY PROGRAM  
FY 2005 ANNUAL PROJECT REPORT

RECOVERY PROGRAM  
PROJECT NUMBER: FR- 115

I. Project Title: Cumulative Effects of Flaming Gorge Dam Releases, since 1996, on the Fish Community in Lodore and Whirlpool canyons, Green River.

II. Principal Investigator(s):

Lead Agency: Larval Fish Laboratory, CSU; Bureau of Reclamation; U.S. Fish and Wildlife Service

Jointly Submitted by: Larval Fish Laboratory, CSU; Bureau of Reclamation; U.S. Fish and Wildlife Service

Kevin R. Bestgen, Ph.D.  
Larval Fish Laboratory  
Dept. of Fishery and Wildlife Biology  
Colorado State University  
Ft Collins, Colorado 80523  
970-491-1848/ fax 970-491-5091  
kbestgen@cnr.colostate.edu

Tom Chart and Larry Crist  
U. S. Fish and Wildlife Service  
2369 West Orton Circle, Suite 50  
West Valley City, Utah 84119  
801-975-3330  
tom\_chart@fws.gov  
larry\_crist@fws.gov

Dave Irving  
Vernal Colorado River Fish Project  
U.S Fish and Wildlife Service  
1380 S. 2350 W.  
Vernal, Utah 84078  
435-789-0354/ fax 435-789-4805  
Chris\_Kitcheyan@fws.gov, tim\_modde@fws.gov

Date: 11 November 2005

III. Project Summary: The primary purpose of this study is to determine the cumulative effect that flow and temperature regimes have had on the fish community in Lodore and Whirlpool canyons of the Green River and recommend how to monitor effects into the future. A secondary purpose is to determine the distribution of the humpback chub population in Whirlpool Canyon to serve as the basis for future monitoring efforts. Future monitoring (i.e. population estimation), if deemed necessary, will be needed to evaluate the contribution of the Whirlpool Canyon population of humpback chub to the

overall recovery of the species. Information gathered will be used to evaluate whether flow and temperature regimes from Flaming Gorge Dam are benefitting endangered fishes in the Green River without causing adverse changes in abundance of non-native fishes.

IV. Study Schedule: 2002-2006.

V. Relationship to RIPRAP:

Green River Action Plan: Mainstem.

II.D. Evaluate and revise as needed, flow regimes to benefit endangered fish populations.

VI. Accomplishment of FY 2005 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1: Thermographs

Thermographs data will be provided by George Smith, U.S. Fish and Wildlife Service, Denver, and by Dr. Mark Vinson, Utah State University, at up to 10 other localities in the Green River. The Green River upstream of the Yampa River experienced a moderately warm thermal regime in 2005, and relatively warmer releases (15°C) were made at the dam this year for the first time, to benefit native fishes.

Task 2: Sample main channel fish community (large-bodied fishes).

We completed two electrofishing trips through the study area in 2005, as prescribed in the study proposal. We captured all endangered fish species during 2005 surveys including Colorado pikeminnow, humpback chub, bonytail and a likely razorback sucker. Similar to 2004, we captured a smallmouth bass near the Echo Park boat ramp in 2005 that had consumed one of stocked bonytail. We only recently completed field work on this project and because of that and the pending year-end final report for this project, we limited discussion of 2005 data collection.

Table 1.–Tentative list of fishes captured in the Green River, from Browns Park downstream to Rainbow Park with electrofishing, trammel nets, and seining, 2002-2005. N = native, I = introduced.

	Status	Electrofishing	Trammel netting	Seining
Mountain whitefish	N	X		X
Humpback chub	N		X	
Bonytail	N	X	X	X <sup>1</sup>
Roundtail chub	N	X	X	X
Colorado pikeminnow	N	X	X	X
Speckled dace	N	X		X
Bluehead sucker	N	X	X	X
Flannelmouth sucker	N	X	X	X
Razorback sucker	N	X		
Mottled sculpin	N	X		X
Cutthroat trout	I	X		
Rainbow trout	I	X	X	
Brown trout	I	X	X	
Northern pike	I	X		X
Red shiner	I			X
Common carp	I	X	X	X
Fathead minnow	I			X
Sand shiner	I			X
Redside shiner	I	X		X
White sucker	I	X	X	X
WS x FM		X	X	
FM x BH		X		
WS x BH		X		
RZB x FM		X		X
Channel catfish	I	X	X	X
Green sunfish	I	X		X
Smallmouth bass	I	X	X	X
Walleye	I	X		

Task 3: Sample small bodied fish community.

About 100 seine samples were collected in the study area from middle Browns Park downstream to the lower end of Rainbow Park during summer and autumn. We are in the process of identifying those samples. Relatively few fish were collected in samples from Lodore Canyon compared to Whirlpool Canyon. We have begun identification of fishes in those samples.

Small-bodied smallmouth bass *Micropterus dolomieu* were found in backwaters throughout Whirlpool Canyon and are now present throughout Lodore Canyon in 2005. We captured smallmouth bass in backwater habitat in Lodore as small as 12-20 mm TL in early-August seine samples, which suggested reproduction by that species in that reach. We also detected many young smallmouth bass in seine samples in Whirlpool Canyon and in the Rainbow-Island Park reach.

Task 4: Sample larval drift and process samples.

Drift samples were collected in the Green River just upstream of the Yampa River from 23 July to 14 August 2005. A total of 69 samples was collected. In general, fish were few in samples compared to drift net samples collected in the nearby Yampa River. We have completed preliminary identification of those samples.

Task 5: Process preserved samples of small-bodied fish (seine hauls).

We have completed identification of 2002 to 2004 samples and are progressing with 2005 seine samples.

Task 6: Prepare and submit annual report.

This report.

Task 7: Prepare final report (includes incorporation of peer review comments). Final report is being reviewed by co-authors and distribution for peer-review is expected in early December. Draft report incorporating 2005 data will be available in spring or summer 2005.

Task 8: submit draft final report to Biology Committee as soon as peer-review is complete.

- VII. Recommendations: We saw a strong fish community response to drought conditions in the study area in 2002 to 2004. Because of ongoing fish community changes in Lodore and Whirlpool canyons, we will be recommending continued monitoring of the fish community in that reach in 2006.

VIII. Project Status: Ongoing and on track.

IX. FY 2005 Budget Status

A. Funds Provided: \$87,706

B. Funds Expended: \$79,000

C. Difference: \$8,706, these funds are needed to finish identification of samples collected in 2005 and to finish 2002 to 2004 report.

D. Percent of the FY 2005 work completed, and projected costs to complete: about 75% completed.

E. Recovery Program funds spent for publication charges: \$0

X. Status of Data Submission (Where applicable): Copy of data will be sent to the database manager in January.

XI. Signed: Kevin R. Bestgen  
Principal Investigator

11 Nov. 2005  
Date