

I. Project Title:

Monitoring Program for Razorback sucker in the Green and Upper Colorado River Systems.

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III. Project Summary:

The federally endangered razorback sucker (*Xyrauchen texanus*), once common and widespread throughout large rivers of the Colorado River Basin, is now rare. A monitoring program was designed to track the status of razorback sucker in the upper Colorado River basin and to evaluate the response of populations to recovery actions. The goal of this program is to implement a standardized, long-term, monitoring program for razorback sucker populations in the Green River and upper Colorado River systems. Initial emphasis of the razorback sucker monitoring program is in the Green River system because it contains the largest extant riverine population, but monitoring will ultimately be expanded once razorback suckers are reestablished elsewhere. Larval and adult life stages of razorback sucker are monitored annually to determine trends in their relative abundance and distribution over time. In the Green River system, distribution and abundance of early life stages of razorback sucker are monitored by light-trapping in low-velocity habitat. Adult distribution and abundance are monitored by sampling with fyke nets and electrofishing in channel margin habitat. This monitoring should continue in future years to document recovery of razorback sucker in the upper Colorado River Basin.

IV. Study Schedule:

- a. Initial year: 1996
- b. Final year: uncertain due to funding changes in FY-2000

V. Relationship to RIPRAP: (*April 1, 1999 Version*)

General Recovery Program Support Action Plan

- V. Monitor populations and habitat and conduct research to support recovery actions, research, monitoring, and data management.

Green River Action Plan - Mainstem

- IIA. Restore and manage Flooded Bottomland Habitat

Colorado River Action Plan - Mainstem

- IIA. Restore and manage Flooded Bottomland Habitat

Colorado River Action Plan - Gunnison River

- IIA. Restore and manage Flooded Bottomland Habitat

VI. Accomplishment of FY 99 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Four major Tasks were outlined in the Final SOW dated April 24, 1998. They are presented in italics and a short paragraph describing the accomplishments and status follow each task.

Task 1. Develop and evaluate strategies for effective, standardized sampling of adult razorback sucker in the middle Green River and monitor relative abundance.

Sampling for adult razorback sucker in the Middle Green and Yampa rivers occurred between April 19 and June 25, 1999 and included four reaches: a lower Yampa River Reach and three middle Green River reaches, Escalante, Jensen, and Ouray. One razorback sucker was captured in the Yampa River. Thirty-six adult razorback sucker were captured in the middle Green River (Table 1) including 27 that were marked in previous years and seven that were unmarked, new captures that were PIT tagged this year. Marking status of two additional fish was not determined due to a malfunctioning PIT tag reader. The seven unmarked fish and six of the 27 recaptured razorback suckers were wild fish. The remaining 21 fish were stocked fish of hatchery origin. All 21 fish were stocked in October 1998, at the Split Mountain boat ramp at river mile (RM) 319.4. Stocked fish were recaptured in all three reaches of the Green River, Escalante, Jensen, and Ouray, indicating some downstream dispersal. Nine of the stocked fish were ripe when captured and four were captured at one of the two spawning bars on the Green River (RM 307 or RM 311.5), indicating that these fish may be contributing to the spawning population. Other important species captured included 104 Colorado pikeminnow (*Ptychocheilus lucius*), 216 northern pike (*Esox lucius*), and six walleye (*Stizostedion vitreum*). All three species have large body size as adults and may pose a predatory threat to razorback sucker. In addition, at Ashley Creek on two separate occasions and at Stewart Drain on one occasion northern pike were captured in large groups (n=10) in spawning condition. The most common species collected was common carp (*Cyprinus carpio*). As in previous years, several carp and at least two Colorado pikeminnow were found in nets partially eaten, presumably by river otter (*Lutra canadensis*).

Task 2. Develop and evaluate strategies for effective, standardized sampling of adult razorback sucker in the lower Green River.

Sampling for adult razorback sucker in the lower Green River was conducted in the Green River Valley and near the San Rafael River confluence. Sampling techniques included fyke nets and boat electrofishing. One razorback sucker was captured at RM 99.2 about 2 miles upstream of the San Rafael Confluence. This recaptured fish was stocked at the Split Mountain boat ramp in October 1998 and had moved downstream about 220 miles. Other important species captured included 23 Colorado pikeminnow, one humpback chub (*Gila cypha*), and 15 bonytail (*Gila elegans*). One bonytail was captured on April 13, at RM 105.5, about 10 miles downstream of the town of Green River, all others were captured between mid-April and late-May at the San Rafael Confluence (RM 97). The bonytail were originally stocked on April 23, 1999 at Green River State Park (RM 125). No northern pike or walleye were captured in the lower Green River.

Task 3. Monitor relative abundance of larval razorback sucker in the middle Green River

Sampling for razorback sucker larvae in the middle Green River was refocused by the Recovery Program in the spring 1999. Sampling effort expended in this monitoring effort was redirected to capture larvae to rear as broodstock. The Escalante, Jensen and Ouray reaches were sampled with light traps and razorback sucker were captured in all three reaches. Sample sites included Cliff Creek, Stewart Lake, Stewart Lake Inlet and Drain, Greasewood Corral, and Brush Creek. Sampling occurred from May 14 until June 16, 1999 and totaled 232 overnight, light trap samples (Table 2). Twelve razorback sucker larvae were collected and transported to Ouray National Fish Hatchery for use in broodstock development. Larval razorback sucker were collected between June 9 and June 16 at Cliff Creek, Stewart Drain, and Greasewood Corral.

Task 4. Monitor relative abundance of larval razorback sucker in the lower Green River

Sampling for razorback sucker larvae was conducted with light traps and seines in the lower Green River including the Green River Valley, San Rafael River, and Labyrinth Canyon reaches. Sampling occurred from April 15 through June 13 and totaled 330 light trap nights (Table 2). Twenty-nine larval razorback sucker were captured in the San Rafael River (n=27) and downstream in the Labyrinth Canyon reaches (n=2), but none were captured in the Green River Valley Reach. An additional 11 potential hybrid razorback suckers were also captured. These fish were considered as potential hybrids whose parents might include razorback sucker. Larval razorback sucker were collected as early as May 12 and as late as June 4. About 60 samples were only recently received by the LFL and about 25 of these remain to be processed.

VII. Recommendations:

1. Continue both adult and larval monitoring.
2. Use the adult monitoring program or the techniques developed for monitoring stocked, hatchery razorback sucker.
3. Consider monitoring other species such as bonytail or Colorado pikeminnow using fyke nets and techniques developed during this program.
4. Reconsider the collection of razorback sucker larvae for broodstock due to the potential that any larvae collected could be the young of stocked fish.
5. Sample adult razorback sucker in the San Rafael River between Hat Ranch and the Green River confluence for potential spawning activity.

VIII. Project Status:

The project has been reduced due to funding constraints and currently Task 3, Larval monitoring in the middle Green River, is the only funded component for FY 2000. Larval monitoring in the lower Green River, and adult monitoring in both the middle and lower Green River are currently unfunded for FY 2000 but are labeled as "contingency" projects that might be funded if additional funds become available.

IX. FY 99 Budget Status

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|----|-----------------|----------|
| A. | Funds Provided: | \$ 208 K |
| B. | Funds Expended: | \$ 175 K |
| C. | Difference: | \$ 33 K |
- Remainder to be used for remaining sample analysis, database management, and cataloging the backlog of samples from previous years.
- | | | |
|----|--|------|
| D. | Percent of the FY 99 work completed, and projected costs to complete: 85% complete, \$33,000 necessary to complete current projects. | |
| E. | Recovery Program funds spent for publication charges: | \$ 0 |

X. Status of Data Submission (Where applicable):

Endangered fish captures and PIT tag information for 1999 has been compiled and will be submitted to the Recovery Program Database Administrator in December 1999 after field crews review the data for accuracy.

XI.	Signed: <u>John Hawkins</u>	<u>12/7/99</u>
	Reporting Principal Investigator	Date

Tables 1-2 attached:

Table 1.—Location, dates, and important species captured by fyke and trammel nets and boat electrofishing during adult razorback sucker basinwide monitoring program, 1999.
All data is provisional until checked and verified by collecting agency.

Sampling Location (Rivemile, RM)	Agency	Dates Sampled	Gear	Species of interest and number captured
Yampa River				
Echo Park (RM 0.0- 2.0)	USFWS-Vernal	May 12 - 14 June 9 - 11	FY & TR	RZ 1 CS 4 NP 3
Middle Green River				
Escalante Reach (RM 302-320)	UDWR-Vernal	April 19 - June 25	FY & TR	RZ 13 ¹ CS 24 ² NP 59 WE 3
Jensen Reach (RM 277-302)	UDWR-Vernal	April 19 - June 25	FY & TR	RZ 20 CS 67 NP 153 WE 3
Ouray Reach (RM 248-277)	USFWS-Vernal	April 29 - June 23	FY & TR	RZ 3 ³ CS 13 ² NP 1
Lower Green River				
Green River Valley Reach (RM 97-120)	UDWR-Moab	April 13 - 14	EL	RZ 1 CS 23 BT 1 HB 1
San Rafael River Reach (RM 94-97)	UDWR-Moab	April 15 - May 26	FY 518 hours	BT 14

Abbreviations for Tables 1 and 2.

Agency: USFWS: U. S. Fish and Wildlife Service
UDWR: Utah Division of Wildlife Resources
Gear: EL: Electrofishing TR: Trammel Net
FY: Fyke Net LT: Light Trap
SE: Seine
Species: RZ: Razorback Sucker CS: Colorado pikeminnow
HB: Humpback Chub BT: Bonytail
NP: Northern Pike WE: Walleye

1 Includes one putative razorback sucker and flannelmouth sucker hybrid.

2 Includes one Colorado pikeminnow found dead.

3 Includes one razorback sucker taken to hatchery for broodstock program.

Table 2.—Location, dates, effort, and important species captured by light trap during larval razorback sucker basinwide monitoring program, 1999.

All data is provisional until checked and verified by collecting agency

Sampling Location	Agency	Dates Sampled	Gear and effort (trap nights) ¹	Number of Endangered or other species of interest captured
Middle Green River				
Escalante Reach (RM 302-320)	USFWS-Vernal	May 24 - June 24	LT (164)	RZ 8 ²
Jensen Reach (RM 277-302)	USFWS-Vernal	May 24 - June 24	LT (56)	RZ 3 ²
Ouray Reach (RM 248-277)	USFWS-Vernal	June 14 - June 16	LT (12)	RZ 1 ²
Lower Green River				
Green River Valley Reach (RM 97-120)	UDWR-Moab	April 19 - June 10	LT (53)	RZ 0
San Rafael River Reach (RM 94-97)	UDWR-Moab	April 15 - June 11	LT (119)	RZ 27 Hybrids 11 ³
Labyrinth Canyon Reach (RM 38-94)	UDWR-Moab	April 21 - June 13	LT (158)	RZ 2

1 Effort (trap nights) was the total number of light traps set overnight during the dates sampled.

2 All razorback sucker larvae from the middle Green River (n=12) were captured alive and transported to the Ouray National Fish Hatchery for Broodstock Program.

3 Putative sucker hybrids that might include razorback sucker parents.