

I. Project title: Development of a channel catfish control program in the lower Yampa River.

II. Principal Investigator(s):
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III. Product Summary:

This project is designed to intensely remove sub-adult and adult channel catfish from the lower Yampa River (rm 46-0) to minimize predatory and competitive impacts on endangered humpback chub, Colorado pikeminnow, and bonytail chub. To evaluate removal efficiency, the river was stratified into ten removal reaches of approximate equal length. Within these reaches, five monitoring reaches (each one rm long) were initially selected to evaluate the fish community response to catfish removal. In 2003, the design was modified to reinstate control reaches and eliminate native fish monitoring sites. Though monitoring ceased, two control reaches were added to track the efficacy of removal efforts. Catfish collected from control reaches were marked and returned to the river. Catch rates of catfish in removal and control reaches were determined per reach, trip and gear type. Length and weight data were used to determine the size structure and biomass of catfish collected per reach and trip. The methods used included fyke netting, electrofishing, and volunteer assisted angling. A total of 3,950 channel catfish were collected in 2003. Catfish sampled from control reaches were marked and returned to the river alive (N=387).

No depletive effects were demonstrated during FY 03, possibly because of low flows hampering access and removal efforts.

IV. Study Schedule:
a: Initial year: FY01
b: Final year: FY06

V. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake Rivers:

III. Reduce negative impacts of nonnative fishes.

III.A.1.c. Control channel catfish.

III.A.1.c.(1) Remove channel catfish in Yampa Canyon.

VI. Accomplishment of FY03 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

The design of the initial approved scope of work included stratifying the 46 mile removal area into ten reaches. Because the pilot study (Modde and Fuller 2000) showed that catfish depletion was possible within reaches, the measure of success shifted from whether reduction was possible to identifying responses of native fish community to reduction efforts. To accomplish this objective five independent one mile monitoring reaches were sampled together with catfish reduction. This design was implemented in 2002. The design was modified in 2003 to conform with other nonnative removal projects. In response, native fish monitoring was eliminated and two (Reaches 2 and 7) of the ten stratified reaches were designated as control reaches where fish were marked and returned to the river in 2003.

Two electrofishing and two angling trips were completed in 2003. During the first and second electrofishing passes 503 and 1,638 channel catfish (mean length=274 mm) were collected from the study area during June 23-26 and July 7-10, respectfully (Table1). Additional trips were scheduled, but by mid-July the canyon was inaccessible by boat (<300 cfs), and low flows prevented navigation of the river. Catfish in control reaches were marked (fin clipped) and returned to the river alive (mean length=279.5 mm). Eighteen hundred and nine catfish were removed from the river by angling (mean length 230 mm). In addition, 32 channel catfish (mean length 294 mm) were caught in fyke nets near Deerlodge Park and Echo Park. Of these, 28 were stocked into Kenny Reservoir by the Colorado Division of Wildlife. Smallmouth bass were the 2nd most abundant nonnative species captured among all gear types (N=351; mean length 193 mm).

Table 1. Number of channel catfish collected from the Yampa Canyon study area, by reach, during 2003.

Reach	Pass #1 EL	Pass #2 EL	Pass #3 AN	Pass #4 AN	Total Catfish Collected
1	14	163	227		404
2 Control	9	178			187
3	10	274	244		528
4	25	230			255
5	35	153	208		396
6	112	256			368
7 Control	95	105			200
8	66	136	324		526
9	48	63			111
10	89	80	178	628	975
Total	503	1638	1181	628	3950

In 2003, collection intensity in removal reaches was not sufficient to demonstrate reductions in catch-per-effort within reaches. Catch rates in control and removal reaches increased during the second pass. The first trip catch rate for the first electrofishing pass was 11.9 catfish/rmi, and two weeks later the trip average increased to 37.8 catfish/rmi. The difference in catch is due either to differences in vulnerability resulting from differences in flow (5,000 cfs vs 1,000 cfs), or to changes in fish abundance during the two weeks between collections.

No differences in size occurred between control and removal reaches. However, catfish caught electrofishing were bigger than those caught angling (Figure 1). This may be due to differences in sampling time and/or habitat use. Electrofishing is done in the spring and angling in late summer; and electrofishing is more effective in fast water habitats whereas angling is more effective in slower, deeper habitats. Biomass per reach indicate that similar amounts of catfish were collected by both gear types (Figure 2). We marked and returned 187 and 200 catfish from control reaches 2 and 7, respectively. During the second electrofishing pass two catfish were recaptured. The first had been marked in reach seven, between river mile 20 and 15 (left pectoral fin clip) and was recaptured in reach 1 (highest upstream reach), between river mile 45 and 40.9. The second was marked and recaptured in reach two (rmi 40.9 - 37).

VII. Recommendations:

1. We recommend that removal efforts of channel catfish from the Yampa River in DNM be continued.
2. Because of the increased abundance in Yampa Canyon, we recommend adding the removal of smallmouth bass to the SOW.
3. Due to poor results, we recommend against removal efforts with fyke nets at Deerlodge and Echo Parks.
4. We recommend that control reaches be eliminated and community response monitoring be reinstated. This is particularly important given the rising abundance of smallmouth bass.

VIII. Project Status: Ongoing through 2006.

IX. FY 03 Budget Status:

	<u>Total</u>
A. Funds Provided:	127,700
B. Funds Expended:	127,700
C. Difference:	0
D. Recovery Program funds spent for publication charges:	\$0

X: Status of Data Submission:

Data are being entered in dBASE files and will be submitted to the program data base manager upon completion of the study.

XI. Signed: Mark H. Fuller and Tim Modde November 14, 2003
Principal Investigators Date

References:

Modde, T., and M. Fuller. 2002. Feasibility of channel catfish reduction in the lower Yampa River. Final Report, Project 88. Submitted to the Recovery Implementation Program, U.S. Fish and Wildlife Service, Denver, CO.

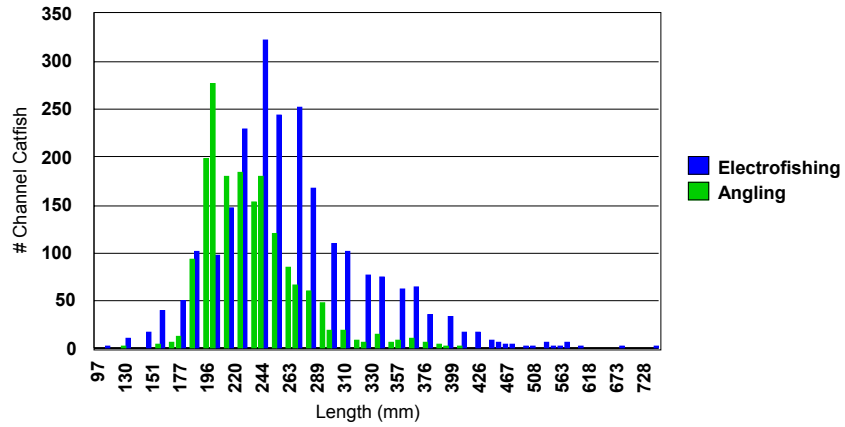


Figure 1. Length frequency of channel catfish caught by electrofishing and angling in the lower Yampa River in 2003.

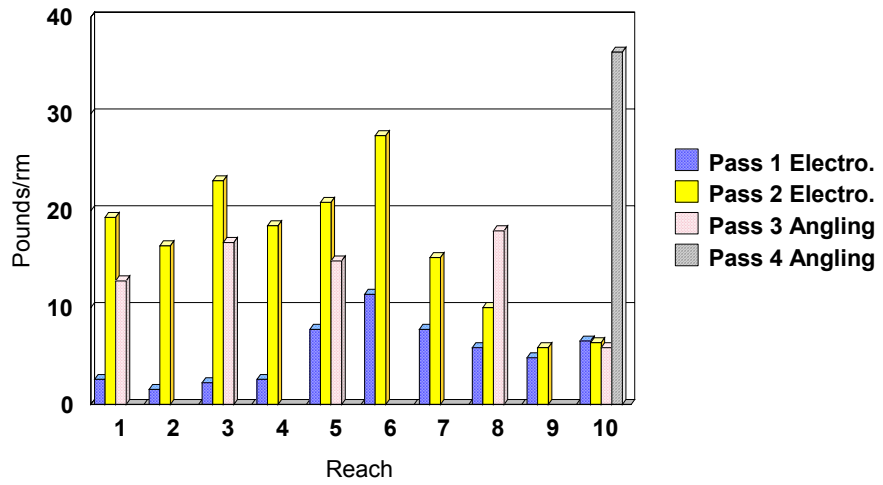


Figure 2. During the 2003 field season 1,432 pounds of catfish were collected in the study area . Pounds per river mile are shown by reach for both electrofishing and angling.