

MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS
FISHERIES DIVISION

JOB PROGRESS REPORT

State Montana

Project No. F-20-R-27

Title South Central Montana Fisheries Investigations

Job No. III-a

Title Musselshell River Study

Period Covered April 1, 1982 through March 31, 1983

ABSTRACT

Temperatures were monitored by continuous recording thermographs at stations on the Musselshell River near Roundup and Melstone. General electrofishing surveys were conducted on three river sections.

OBJECTIVES AND DEGREE OF ATTAINMENT

1. To further document instream flow recommendations. No work was accomplished on this objective.
2. To identify species present in the lower 100 miles of river. No work was accomplished on this objective.
3. To monitor success of the introduced smallmouth bass. Data are presented in this report.
4. To monitor instream temperatures. Data are presented in this report.
5. To map migration pattern of channel catfish in lower 100 miles of river. No work was accomplished on this objective.

PROCEDURES

Mean monthly maximum and minimum water temperatures were calculated from daily temperatures recorded at Roundup and Melstone by 31-day continuous-reading thermographs.

General electrofishing surveys were conducted on three stream sections during October using a boat-mounted, fixed-electrode system with a toggle switch allowing for conversion back and forth to a mobile electrode thrown from the boat. The system produced 8-12 amps of pulsating direct current. Efficiency was high as the stream was low and clear. Nearly all game fish observed were captured. Following are descriptions of the three sections electrofished:

Section 1 - Hoffman Ranch, about 10 river miles east of Lavina (river mile 241); section length approximately 0.5 miles.

Section 2 - Musselshell diversion dam (river mile 160.5) downstream to Korenko diversion dam; section length approximately 2.5 miles.

Section 3 - Highway 12 bridge near Melstone (river mile 130.4) downstream; section length approximately 2.8 miles.

Table 2. Species and relative abundance as determined by electrofishing on three sections of the Musselshell River

River Section	Species	No. Measured	Length Range (Inches)	No. Observed
1 10/25/82 0.5 miles	Smallmouth bass	1	4.7	
	White sucker	11	6.0-10.0	
	Shorthead redhorse	3	10.0-12.0	
	Carp	1	3.0	
2 10/26/82 2.5 miles	Channel catfish	8	18.8-27.0	
	Smallmouth bass	1	13.3	
	Sauger	1	13.7	
	Goldeye			300-400
	Carp			100
	White sucker			25
	Shorthead redhorse			25
	Longnose dace			10
	Flathead chub			5
	River carpsucker			1
	Stonecat			2
3 10/28/82 2.8 miles	Channel catfish	7	20.4-30.0	3
	Sauger	2	14.8-16.0	2
	Goldeye			200
	Carp			100
	Shorthead redhorse			40
	River carpsucker			10
	Minnows (Sp. not determined)			150

Water Temperatures

Temperatures recorded at the two monitoring stations are presented in Table 1.

Table 1. Mean monthly maximum and minimum temperatures at two stations on the Musselshell River during the period April 1, 1982-March 31, 1983

Temp.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
<u>ROUNDUP</u>												
\bar{X} Max.	50.3	60.1	-	-	-	59.1 ¹	50.1	34.8	32.7	32.3	33.1	43.6
\bar{X} Min.	43.8	53.6	-	-	-	54.2 ¹	45.6	32.4	32.0	32.2	32.3	37.8
<u>MELSTONE</u>												
\bar{X} Max.	50.6	60.3	65.0	-	-	54.8 ¹	46.7	34.9	32.1	32.0 ²	-	-
\bar{X} Min.	45.3	55.1	61.3	-	-	53.6 ¹	45.8	34.6	32.0	32.0 ²	-	-

¹Based on last 14 days of month only.

²Based on first 12 days of month only.

Electrofishing Surveys

Electrofishing surveys were conducted in three stream sections throughout the reach where smallmouth bass have been introduced. A total of 193,000 smallmouth bass fry were stocked in the Musselshell between Shawmut and Melstone over a 5-year period between 1977 and 1981. During October 1982, 3 days of electrofishing covering 5.8 miles of river resulted in the capture of only two smallmouth bass.

Results of the electrofishing survey are presented in Table 2. Game fish were captured and measured whenever possible. Fish listed as "observed" were not captured, but water clarity was sufficiently high to allow accurate species identification and estimation of relative abundance of some nongame species.

RECOMMENDATIONS

The relatively low numbers of smallmouth bass encountered indicates that the stocking program for this species has not produced a self-sustaining fishery. A more intense search should be conducted to determine whether continued stocking is warranted. The river should not be stocked for several years to determine whether natural reproduction of smallmouth bass is occurring. The composition of the fish population of the lower 100 miles of the Musselshell River should be identified. There are reports that smallmouth bass have been caught by anglers as far downstream as the mouth of the Musselshell River.

Prepared by Wade Fredenberg

Date May 13, 1983

Waters referred to:

Musselshell River, Sec. 1 18-4320

Key words: Smallmouth bass
Water temperature