

MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION

JOB PROGRESS REPORT
RESEARCH PROJECT SEGMENT

State: Montana Title: Reservoir Investigations
Project No.: F-34-R-14 Title: Hungry Horse Reservoir Study
Job No.: II-a
Period Covered: 1 July 1979 through 30 June 1980

OBJECTIVES

The objectives of this job were to determine fish population trends in Hungry Horse Reservoir and to determine reservoir tributaries used for spawning by cutthroat trout and mountain whitefish.

PROCEDURES

Fish population trends have been determined by gill net sampling several areas of the reservoir each spring and fall every even numbered year since 1960. The spring 1980 sampling was done during this report period and the fall sampling will be done in late October or early November 1980. Big game personnel have collected angler harvest information during the fall hunting season each year starting in 1965. Determining those streams used for spawning by mountain whitefish and cutthroat trout was done by visual observations. Not all streams tributary to the reservoir were checked in fall 1979 or spring 1980.

WORK ACCOMPLISHED

A total of 39 overnight sinking gill net sets were made in May 1980. In addition to numbers of fish caught per net, data on length, weight and scale samples for age and growth determination were collected. Average catch per net totaled 32.9 fish of which 0.8 were cutthroat trout, 7.3 bull trout (Dolly Varden), 10.7 mountain whitefish, 4.7 largescale suckers, 4.0 longnose suckers, and 5.2 northern squawfish. Comparison of these numbers and data on length, weight, age and growth to previous years information will be made after the fall 1980 sampling has been done.

Big game check station personnel have collected angler harvest information during hunting season annually since 1965. Montana's big game hunting season has started in late October and ended in late November so that the calendar-time censused each year was

similar. Since angler census was secondary to checking hunters, station operators took limited creel census data. Data collected included number of anglers, hours fished, water(s) fished, and number of fish caught by species.

Angling during the hunting season in the Hungry Horse Reservoir drainage is selective to two species of fish, cutthroat trout or mountain whitefish. Whitefish are caught from tributary streams while on their spawning run and cutthroat trout are caught in the reservoir. Few cutthroat are caught by anglers fishing the tributary streams and few whitefish are caught by anglers fishing the reservoir. Creel census data for the years of 1965 through 1979 are presented in Table 1 for anglers fishing streams and the reservoir.

Catch per man-hour from the reservoir has varied considerably throughout the years censused. This variability may be related to weather conditions, fish populations and reservoir pool elevations. Drafting of Hungry Horse Reservoir for power production usually starts in mid-September to early October except when additional (provisional) power was generated in the years of 1969 through 1973. Reservoir drafting for generation of provisional power during these years increased drawdown by 10 to 30 feet over that of other years. Whether the increased drawdown in the years of 1969 through 1973 "concentrated" the available fish into less area resulting in higher catch rates is not known but it could occur.

Drafting for provisional power did affect angler use of the reservoir. In years prior to 1973, only one boat landing was usable at drawdowns of 20 feet or more. Construction since 1973 has resulted in three boat launches usable to at least 80 feet of drawdown. Almost all reservoir angling is by trolling from boats and foul weather commonly occurring at this time of year reduces fishing pressure and hours spent fishing by those people angling. The average fishing trip was 1.8 hours long in 1972; a year when weather conditions were bad. The average trip was 4.6 hours in 1974; a year when weather conditions were good.

Fish population trend netting done biennially since 1958 has indicated a fairly stable westslope cutthroat trout population. These data, unpublished at this time, indicates an increasing population from about 1960 through 1968, a declining population through 1974, and an increasing population through spring 1980. Average catch per net of cutthroat during fall sampling varied from 1.5 fish in 1970 (32 foot drawdown) to 0.8 fish in 1960 at full pool elevation. Enumeration of the spawning run of westslope cutthroat trout into Hungry Horse Creek showed that about 1200 fish spawned in 1963, declining to 750 fish in 1972. Trend and spawning population data indicate declining numbers of cutthroat in the reservoir for 1968 through 1972, but angler success rates were the highest of the years sampled.

Catch of bull trout, although low all years, has shown a marked increase since 1975. Bull trout of all sizes could be

Table 1. Angler harvest of salmonids from Hungry Horse Reservoir and tributary streams during big game hunting season, 1965-1979.

Year	Area fished	Number anglers	CPNH ¹	C/A ²	Number caught ³			Area fished	Number anglers	CPNH ¹	C/A ²	Number caught ³		
					Mwf	Wct	DV					Mwf	Wct	DV
1965	Reservoir	29	0.5	1.8	1	50	1	Streams	57	2.6	7.1	402	0	0
1966	Reservoir	17	0.8	3.8	0	64	0	Streams	85	2.8	12.1	1,025	0	0
1967	Reservoir	42	0.6	3.1	4	127	0	Streams	176	2.4	8.7	1,531	0	0
1968	Reservoir	51	0.4	1.6	7	74	0	Streams	132	1.8	6.3	832	3	0
1969	Reservoir	35	1.5	4.6	10	152	0	Streams	133	4.0	13.4	1,743	40	0
1970	Reservoir	34	1.5	4.0	6	123	1	Streams	122	4.5	14.3	1,746	5	0
1971	Reservoir	49	1.0	3.5	0	170	1	Streams	187	2.8	10.8	2,013	7	0
1972	Reservoir	31	0.9	1.6	0	49	0	Streams	91	6.5	10.7	975	0	0
1973	Reservoir	39	0.9	3.1	0	119	2	Streams	179	5.5	8.5	1,530	1	0
1974	Reservoir	129	0.5	2.1	0	270	5	Streams	112	2.9	11.3	1,259	10	0
1975	Reservoir	89	0.6	1.7	1	152	3	Streams	189	4.1	10.9	2,064	2	0
1976	Reservoir	43	0.8	1.8	1	71	7	Streams	244	7.3	13.8	3,370	4	0
1977	Reservoir	45	0.4	2.1	0	32	11	Streams	200	4.7	11.5	2,292	0	0
1978	Reservoir	38	0.5	1.7	0	65	1	Streams	165	3.6	10.7	1,744	18	0
1979	Reservoir	74	0.4	1.9	6	121	13	Streams	172	4.9	13.7	2,347	10	2

¹Catch per man-hour ²Catch per angler

³Mwf is mountain whitefish, Wct is westslope cutthroat trout, DV is bull trout (Dolly Varden)

legally kept since 1975 while before 1975 this species had to be at least 18 inches total length to be legal.

Angler pressure and catch of whitefish from streams appears to have increased during the years censused. Stream anglers may not be as sensitive to poor weather fishing conditions as reservoir anglers and access into the streams is not limited by reservoir drawdown. Angler success rates probably reflect abundance of spawning fish available. Generally, spawning runs into most tributaries start in early November and peak in mid-November. The most noticeable exception occurred in 1968 when whitefish spawning runs did not start until mid-November and peaked after the end of hunting season.

Spawning populations of cutthroat trout from the reservoir were observed in the following streams: Emery, Hungry Horse, Tent, Murray, McInernie, Harris, Logan, Hoke, Clark, Sullivan, Wheeler, Forest, Wounded Buck, Lost Johnny, and Doris Creeks. All these streams have been used for spawning by cutthroat trout in previous years. No spawning cutthroat trout were observed in Riverside Creek in spring 1980, although fish have spawned in this creek in previous years. This drainage is a high gradient stream and it was suspected that barriers to upstream fish movement had formed since the initial fish access survey was done in 1962. The U.S. Forest Service agreed to examine this creek for barriers from Forest Access Road #38 to its mouth. Results of this survey, if it was done, are not known at this time.

Spawning runs of cutthroat trout were blocked from entering Emery Creek by a logjam creating an eight-foot high falls in a box canyon about 400 yards above its mouth in 1979. The U.S. Forest Service removed this logjam in winter 1979 and spawning fish moved into the stream in spring 1980.

Spawning populations of mountain whitefish were observed in the following creeks in fall 1979: Emery, Hungry Horse, Sullivan, Wheeler, Wounded Buck and Doris Creeks, and South Fork Flathead River. Spawning whitefish were found in these same creeks with the exception of Emery Creek in surveys done in 1962. Whitefish were first observed spawning in Emery Creek in 1974. Creek length used for spawning since 1974 has been limited to about 100 yards of stream immediately above full-pool elevation.

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Waters referred to
Hungry Horse Reservoir - 1-08-8860-05 ✓