

# IDAHO DEPARTMENT OF FISH & GAME

Joseph C. Greenley, Director

FEDERAL AID TO FISH AND WILDLIFE RESTORATION

Job Performance Report

Project F-66-R-3



RIVER AND STREAM INVESTIGATIONS

Job No. IV. Lochsa River Fisheries Investigations

Period Covered: 1 March 1977 to 28 February 1978

by

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## TABLE OF CONTENTS

	Page
ABSTRACT .....	1
RECOMMENDATIONS .....	2
OBJECTIVES .....	2
TECHNIQUES USED .....	2
Angler Creel Census .....	2
Angler Residency, Methods and Opinions .....	3
Release of Hatchery Rainbow in Lochsa River.....	3
Snorkeling .....	7
FINDINGS .....	7
Angler Effort and Harvest .....	7
Species Composition .....	10
Catch Rates .....	14
Length Frequencies .....	14
Angler Residency .....	14
Angler Methods and Opinions .....	19
Snorkeling .....	19
DISCUSSION .....	19
LITERATURE CITED .....	26
APPENDIX .....	27

## LISTS OF TABLES

Table 1. Releases of hatchery catchable rainbow in the Lochsa River, 1976 and 1977.....	5
Table 2. Comparison of total estimated angler effort and species caught by anglers in the Lochsa River and Crooked Fork (mouth to Highway 12 Bridge), 1976 and 1977 .....	6
Table 3. Comparison of total estimated angler effort and fish caught by stream section in the Lochsa River and Crooked Fork (mouth to Highway 12 Bridge), 1976 and 1977 .....	9
Table 4. Comparison of estimated hours fished and harvest by anglers on the Lochsa River below Boulder Creek by 2-week intervals, 1976 and 1977 (catch-and-keep both years) .....	11

## LIST OF TABLES (Continued)

	<u>Page</u>
Table 5. Comparison of estimated hours fished and species caught by anglers on the Lochsa River above Boulder Creek and Crooked Fork (mouth to Highway 12 Bridge) by 2-week intervals, 1976 (catch-and-keep) and 1977 (catch-and-release) .....	12
Table 6. Comparison of percent composition of catch by stream section in the Lochsa River, 1976 and 1977 .....	16
Table 7. Comparison of catch rates by anglers on the Lochsa River and lower eight miles of Crooked Fork Creek by 2-week intervals, 1976 and 1977 .....	17
Table 8. Comparison of percent of nonresident anglers fishing the Lochsa River above and below Boulder Creek by 2-week intervals, 1976 and 1977 .....	20
Table 9. Angling methods and angler opinion information collected on the Lochsa River, 1976 and 1977 .....	21
Table 10. Densities of salmonids (fish/100 m) in snorkel sections in the Lochsa River, 1975, 1976 and 1977 (Graham 1977 and Mabbott 1978) .....	22

## LIST OF FIGURES

Figure 1. Stream sections used in conducting the creel census study on the Lochsa River, 1977 .....	4
Figure 2. Comparison of estimated angler effort on the Lochsa River and above Boulder Creek by 2-week census intervals, 1976 and 1977 .....	13
Figure 3. Comparison of species composition of the angler catch and total estimated catch from the Lochsa River above and below Boulder Creek, 1976 and 1977 .....	15
Figure 4. Length frequencies of wild rainbow-steelhead measured from the Lochsa River in 1976 and 1977 .....	18

JOB PERFORMANCE REPORT

State of Idaho

Name: RIVER AND STREAM INVESTIGATIONS

Project No. F-66-R-3

Title: Lochsa River Fisheries  
Investigations

Job No. IV

Period Covered: 1 March 1977 to 28 February 1978

ABSTRACT

To evaluate changes in angling pressure and harvest of gamefish brought about by the newly imposed catch-and-release regulations above Boulder Creek, fisheries personnel conducted an intensive angler count-interview type creel census on the Lochsa River and the lower 12.9 km (8 mi) of Crooked Fork Creek. Census techniques and stream sections were the same as those used in 1976.

From 28 May to 10 September 1977, anglers fished an estimated 8,785 hours below Boulder Creek to catch and keep an estimated 1,742 wild rainbow steelhead (27.5%), 4,021 hatchery catchable rainbow (63.4%), 210 cutthroat trout (3.3%), 22 Dolly Varden (0.3%) and 351 whitefish (5.5%). Anglers fished an additional 984 hours above Boulder Creek to catch and release an estimated 1,853 wild rainbow-steelhead, 541 cutthroat and 28 whitefish.

From 29 May to 10 September 1976, anglers fished an estimated 13,679 hours in the entire census area to catch and keep 11,170 wild rainbow-steelhead (73.0%), 2,557 hatchery catchable rainbow (16.7%), 654 cutthroat trout (4.3%), 195 Dolly Varden (1.3%) and 717 whitefish (4.7%).

In the new catch-and-release area above Boulder Creek, estimated angler effort decreased by 88.1% from 8,249 hours in 1976 to 984 hours in 1977. Actual harvest of wild rainbow-steelhead decreased 94.5% from 8,444 to 470 while harvest of cutthroat decreased 75.1% from 449 to 112.

Below Boulder Creek, which remained catch-and-keep both years, estimated angler effort increased by 61.7% from 5,430 hours in 1976 to 8,785 hours in 1977. Harvest of hatchery rainbow increased five-fold from 755 in 1976 to 4,021 in 1977.

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## RECOMMENDATIONS

Continue catch-and-release regulations on the Lochsa River above Boulder Creek as a means of increasing cutthroat trout populations and protecting wild juvenile steelhead.

Stock all hatchery catchable rainbow in the catch-and-keep area below Boulder Creek.

Continue the intensive angler count-interview type creel census on the Lochsa to evaluate the effects of the catch-and-release regulation on populations of wild juvenile steelhead and cutthroat trout.

Continue snorkeling in established transect areas to monitor distribution and abundance of wild juvenile steelhead and cutthroat trout in the Lochsa River and tributaries.

## OBJECTIVES

To measure the angling pressure on and harvest of cutthroat trout, juvenile steelhead and hatchery catchable rainbow trout in the Lochsa River.

To monitor cutthroat trout distribution and abundance in the Lochsa River and selected tributaries.

To collect life history data on cutthroat trout populations in the Lochsa River and selected tributaries.

To collect angler opinions on the acceptability of catch-and-release or other restrictive regulations for the Lochsa River.

To evaluate the effects of catch-and-release or other restrictive regulations on the cutthroat trout and juvenile steelhead populations of the Lochsa River.

## TECHNIQUES USED

### Angler Creel Census

From 28 May through 10 September 1977, fisheries personnel conducted an intensive angler count interview-type creel census on the Lochsa River and the lower 12.9 km (8 mi) of Crooked Fork Creek. Census sections and techniques used in 1977 were identical to those of 1976. Sections 4, 5 and 6 were regulated on a catch-and-release basis for trout in 1977, while all sections were catch-and-keep during 1976. Census sections for both years were (Fig. 1):

Section 1 -- Mouth of Lochsa (Lowell) to Split Creek - 24 km (15 mi)

Section 2 -- Split Creek to Fish Creek - 13.6 km (8.5 mi)

Section 3 -- Fish Creek to Boulder Creek - 3.2 km (2.0 mi)

Section 4 -- Boulder Creek to Warmspring Creek - 45.6 km (28.5 mi)

Section 5 -- Warmspring Creek to mouth of Crooked Fork Creek - 20 km (12.5 mi)

Section 6 -- Mouth of Crooked Fork Creek to Highway 12 Bridge - 12.8 km (8.0 mi)

To remove error due to seasonal and type-of-day variability, we divided the fishing season into 2-week intervals and further subdivided these intervals into Saturdays, Sundays, holidays and weekdays. We counted anglers four times a day on all holidays, one Saturday, one Sunday and two randomly selected weekdays per 2-week interval. The average of the counts for each type of day was expanded to obtain an estimate of angling pressure for that type of day during the interval. These totals were added to calculate total pressure for the interval. Counts were conducted by driving along Highway 12 which parallels the entire length of the Lochsa and the lower 12.9 km (8 mi) of Crooked Fork Creek. The estimate of angling pressure for a 2-week interval is the product of average angler count times average daylight hours in that interval times number of days of each class (weekend, holiday, weekday) in the interval.

We interviewed anglers to obtain information on hours fished, numbers of each species caught, angler residency, method of angling and angler opinions. In addition to the angler interviews obtained on count days, we interviewed anglers on all other weekend days as time permitted. Estimates of harvest for an interval are the product of the estimated angling pressure times the average catch per hour for each species as obtained from the angler interviews.

To obtain length frequencies, we measured all wild rainbow and cutthroat checked in anglers' creels. The majority of hatchery rainbow, Dolly Varden and whitefish checked were also measured.

#### Angler Residency, Methods and Opinions

In addition to the catch rate information obtained from angler interviews, angler residency and method of angling (bait, lures, flies) were noted. Anglers were also asked if they considered fishing on the Lochsa River good, fair or poor; and if they were in favor of the catch-and-release regulation to restore cutthroat to the Lochsa River.

#### Release of Hatchery Rainbow in Lochsa River

Hatchery personnel released a total of 11,785 hatchery catchable rainbow trout into the Lochsa River during 1977. All releases were made in the catch-and-keep area below Boulder Creek. These fish ranged from 6.4 - 10.4 / kg (2.9 - 4.7 / lb). In 1976, a total of 12,640 hatchery catchable rainbow were released into the Lochsa above Boulder Creek while none were released below Boulder Creek. Fish released in 1976 ranged from 7.1 - 8.4 / kg (3.2 - 3.8 / lb) (Table 1).

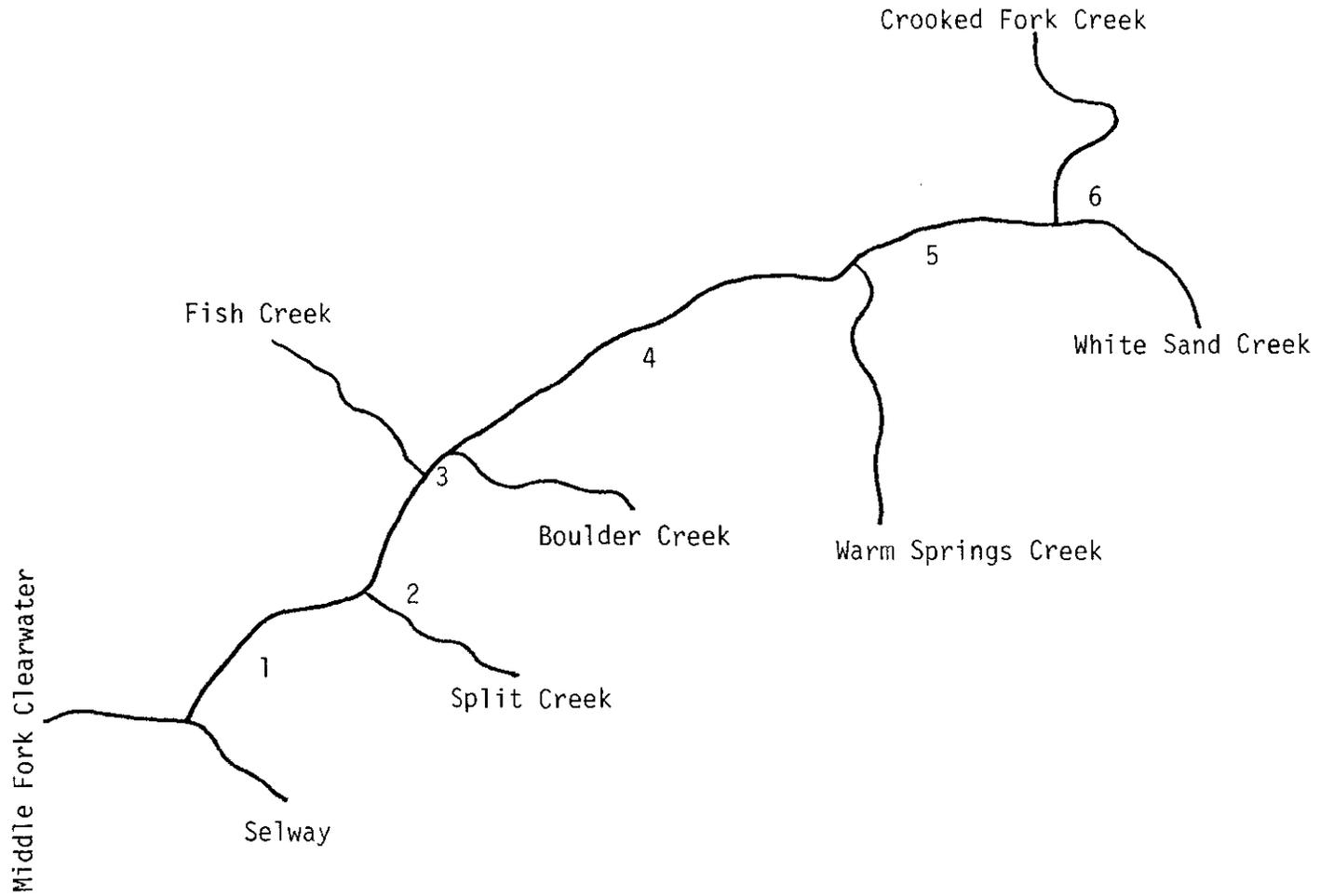


Figure 1. Stream sections used in conducting the creel census study on the Lochsa River, 1977.

Table 1. Releases of hatchery catchable rainbow in the Lochsa River, 1976 and 1977

Year	Date of release	Number of fish	Fish per pound
1976*	6/29	2,280	3.8
	6/30	2,280	3.8
	7/8	2,960	3.7
	7/20	2,560	3.2
	7/21	<u>2,560</u>	3.2
		<u>12,640</u>	
1977**	5/24	1,595	2.9
	6/2	2,050	4.1
	6/14	3,440	4.3
	6/27	<u>4,700</u>	4.7
		<u>11,785</u>	

\* All 1976 releases of hatchery catchable rainbow were above Boulder Creek

\*\* All 1977 releases of hatchery catchable rainbow were below Boulder Creek

Table 2. Comparison of total estimated angler effort and species caught by anglers in the Lochsa River and Crooked Fork (mouth to Highway 12 Bridge), 1976 and 1977

Year	Estimated hours fished	Species caught											
		WRB		HRB		CT		DV		WF		Total	
		Kept	Rel.	Kept	Rel.	Kept	Rel.	Kept	Rel.	Kept	Rel.	Kept	Rel.
1976	13,679	11,170	-	2,557	-	654	-	195	-	717	-	15,293	-
	Percent of total	73.0	-	16.7	-	4.3	-	1.3	-	4.7	-		
	Fish/hour	.816	-	.187	-	.048	-	.014	-	.052	-	1.12	
1977	9,769	1,742	1,853	4,021	0	210	541	22	0	351	28	6,346	2,422
	Percent of total	27.5	76.5	63.4	0.0	3.3	22.3	0.3	0.0	5.5	1.2		
	Fish/hour	.198	1.88	.458	0.0	.024	.550	.002	0.0	.040	.028	.722	2.46

## Snorkeling

A major indicator of increases in cutthroat and juvenile steelhead population in the Lochsa River will be numbers of fish counted in the snorkel transects which have been established since 1973 (see Appendix for transect locations). Since the University of Idaho Cooperative Fisheries Unit was conducting a study which involved snorkeling 22 transects in the Lochsa during 1977, we used their counts to avoid duplication of effort.

Transects were snorkeled by floating downstream close to the shoreline and counting out toward midstream. Two floats were made over the same area and the larger fish count was used. Fish densities are expressed in numbers per 100 m of stream length. Juvenile steelhead were classified by length as Age II and older (130-195 mm), Age I (75-125 mm) and trout fry (<75 mm). Trout fry could not be separated as to rainbow, steelhead or cutthroat, but most fry in the sections were believed to be steelhead. Rainbow-steelhead trout longer than 200 mm or of hatchery origin (based on deformed dorsal fin) were classified as resident rainbow trout. Juvenile chinook densities included young-of-the-year and yearlings (Graham 1977).

## FINDINGS

### Angler Effort and Harvest

Between 28 May and 10 September 1977 (general trout season) anglers fished an estimated 9,769 hours on the Lochsa River and the lower 12.9 km (8 mi) of Crooked Fork Creek. They caught and kept an estimated 1,742 wild rainbow-steelhead (27.5%), 4,021 hatchery rainbow trout (63.4%), 210 cutthroat trout (3.3%), 22 Dolly Varden (0.3%) and 351 whitefish (5.5%). Anglers caught and kept fish at an overall rate of 0.72 fish per hour during 1977 with wild rainbow being caught at a rate of 0.20, hatchery rainbow 0.46, cutthroat 0.02, Dolly Varden 0.002 and whitefish 0.04. In the newly established catch-and-release area above Boulder Creek anglers caught and released an estimated 1,853 wild rainbow-steelhead (76.5%), 541 cutthroat trout (22.3%), and 28 whitefish (1.2%). Anglers caught and released fish at an overall rate of 2.46 fish per hour with wild rainbow-steelhead being caught at a rate of 1.88 per hour, cutthroat 0.55 per hour and whitefish 0.03 per hour (Table 2).

By comparison, anglers fished an estimated 13,679 hours during the catch-and-keep season of 1976 to harvest 11,170 wild rainbow-steelhead, 2,557 hatchery catchable rainbow trout, 654 cutthroat trout, 195 Dolly Varden and 717 whitefish. In 1976, wild rainbow-steelhead made up 73.0% of the catch, hatchery catchable rainbow 16.7%, cutthroat 4.3%, Dolly Varden 1.3% and whitefish 4.7%. Anglers caught fish at an overall rate of 1.12 fish per hour, with wild rainbow-steelhead being caught at a rate of 0.82 per hour, hatchery catchable rainbow 0.19, cutthroat 0.05, Dolly Varden 0.01 and whitefish 0.05 (Lindland 1977).

From the mouth of the Lochsa to Split Creek (Section 1), anglers fished an estimated 4,447 hours in 1977 to catch 492 wild rainbow-steelhead (20.4%), 1,712 hatchery rainbow (71.1%), 136 cutthroat (5.7%), 17 Dolly Varden (0.7%) and 51 whitefish (2.1%). Anglers caught an average of 0.54 fish per hour in Section 1 during 1977 (Table 3). In 1976, anglers fished an

estimated 2,779 hours in this section to catch 657 wild rainbow-steelhead (49.0%), 382 hatchery rainbow (28.5%), 117 cutthroat (8.7%), 12 Dolly Varden (0.9%) and 174 whitefish (12.9%). Anglers caught an average of 0.48 fish per hour in Section 1 during 1976. The 60.0% increase in effort in this section during 1977 resulted in a 79.4% increase in total fish harvested.

From Split Creek to Fish Creek (Section 2), anglers fished an estimated 2,200 hours in 1977 to catch 856 wild rainbow-steelhead (52.3%), 457 hatchery rainbow (27.9%), 52 cutthroat (3.2%), 5 Dolly Varden (0.3%) and 266 whitefish (16.3%). Anglers caught an average of 0.74 fish per hour in Section 2 during 1977 (Table 3). In 1976, anglers fished an estimated 1,987 hours in this section to catch 1,420 wild rainbow-steelhead (73.2%), 108 hatchery rainbow (5.6%), 54 cutthroat (2.8%), 36 Dolly Varden (1.9%) and 322 whitefish (16.5%). Anglers caught an average of 0.98 fish per hour in Section 2 during 1976. The 10.7% increase in effort in this section during 1977 resulted in a 15.7% decrease in total fish harvested.

From Fish Creek to Boulder Creek (Section 3), anglers fished an estimated 2,138 hours in 1977 to catch 394 wild rainbow-steelhead (17.1%), 1,852 hatchery rainbow (80.4%), 22 cutthroat (1.0%) and 34 whitefish (1.5%). Anglers caught an average of 1.08 fish per hour in Section 3 during 1977 (Table 3). In 1976, anglers fished an estimated 841 hours in this section to catch 749 wild rainbow-steelhead (64.8%), 265 hatchery rainbow (26.5%), 34 cutthroat (3.4%) and 53 Dolly Varden (5.3%). Anglers caught an average of 1.19 fish per hour in Section 3 during 1976. The 154% increase in effort in this section during 1977 resulted in a 130% increase in total fish harvested.

From Boulder Creek to Warmspring Creek (Section 4), anglers fished an estimated 552 hours in 1977 to catch and release 1,261 wild rainbow-steelhead (73.6%), 425 cutthroat (24.8%) and 28 whitefish (1.6%). Anglers caught and released an average of 3.11 fish per hour in Section 4 during 1977 (Table 3). We also estimated an illegal harvest of 355 wild rainbow-steelhead, 39 hatchery rainbow, 112 cutthroat and 9 Dolly Varden in this section in 1977. During 1976, anglers fished an estimated 5,228 hours in this section to catch and keep 4,839 wild rainbow-steelhead (75.3%), 1,072 hatchery rainbow (16.6%), 303 cutthroat (4.7%), 46 Dolly Varden (0.7%) and 168 whitefish (2.6%). Anglers caught an average of 1.23 fish per hour in Section 4 during 1976.

From Warmspring Creek to the mouth of Crooked Fork Creek (Section 5), anglers fished an estimated 350 hours in 1977 to catch and release 548 wild rainbow-steelhead (85.4%) and 94 cutthroat (14.6%). Anglers caught and released an average of 1.84 fish per hour in Section 5 during 1977 (Table 3). We estimated an illegal harvest of 49 wild rainbow-steelhead in this section in 1977. During 1976, anglers fished an estimated 1,690 hours in this section to catch and keep 2,635 wild rainbow-steelhead (84.9%), 292 hatchery rainbow (9.4%), 110 cutthroat (3.5%), 13 Dolly Varden (0.4%) and 53 whitefish (1.8%). Anglers caught an average of 1.84 fish per hour in Section 5 during 1976.

From the mouth of Crooked Fork Creek to the Highway 12 Bridge across Crooked Fork (Section 6), anglers fished an estimated 82 hours in 1977 to catch and release 44 wild rainbow-steelhead (66.7%) and 22 cutthroat (33.3%). So few people fished this section during 1977 that there were several in-

Table 3. Comparison of total estimated angler effort and fish caught by stream section in the Lochsa River and Crooked Fork (mouth to Highway 12 Bridge), 1976 and 1977.

Stream Section	Year	Estimated hours fished	Species caught					Total
			WRB	HRB	CT	DV	WF	
1	1976 <sup>1</sup>	2,779	657	382	117	12	174	1,342
	1977 <sup>2</sup>	4,447	492	1,712	136	17	51	2,408
2	1976	1,987	1,420	108	54	36	322	1,940
	1977	2,200	856	457	52	5	266	1,636
3	1976	841	649	265	34	53	0	1,001
	1977	2,138	394	1,852	22	0	34	2,302
4 <sup>3</sup>	1976	5,228	4,839	1,072	303	46	168	6,428
	1977	552	1,261	0	425	0	28	1,714
5 <sup>3</sup>	1976	1,690	2,635	292	110	13	53	3,103
	1977	350	548	0	94	0	0	642
6 <sup>3</sup>	1976	1,154	970	438	36	35	0	1,479
	1977	82	44	0	22	0	0	66
Total	1976	13,679	11,170	2,557	654	195	717	15,293
	1977	9,769	3,595	4,021	751	22	379	8,768

<sup>1</sup>All hatchery catchable rainbow were released in Sections 4, 5 and 6 (above Boulder Creek) in 1976.

<sup>2</sup>All hatchery catchable rainbow were released in Sections 1, 2 and 3 (below Boulder Creek) in 1977.

<sup>3</sup>These sections were regulated on a catch-and-release basis in 1977 and estimates are for fish caught and released.

tervals where no anglers were counted or interviewed. Anglers caught and released an average of 0.81 fish per hour in Section 6 during 1977 (Table 3). We estimated an illegal harvest of 66 wild rainbow-steelhead in this section in 1977. During 1976, anglers fished an estimated 1,154 hours to catch and keep 970 wild rainbow-steelhead (65.5%), 438 hatchery rainbow (29.6%), 36 cutthroat (2.4%) and 35 Dolly Varden (2.4%). Anglers caught an average of 1.28 fish per hour in Section 6 during 1976.

Year-to-year comparisons of census statistics below Boulder Creek (catch-and-keep both years) and above Boulder Creek (catch-and-release in 1977) reveal some dramatic changes brought about by the new regulation. Estimated angler effort below Boulder Creek increased 61.8% from 5,430 hours in 1976 to 8,785 hours in 1977 (Fig. 2).

In 1976, anglers fishing below Boulder Creek caught 2,726 wild rainbow-steelhead (63.6%), 755 hatchery catchable rainbow (17.6%), 205 cutthroat trout (4.8%), 101 Dolly Varden (2.4%) and 496 white-fish (11.6%). Anglers caught an average of 0.76 fish per hour below Boulder Creek in 1976. In 1977, anglers fishing below Boulder Creek caught 1,742 wild rainbow-steelhead (27.5%), 4,021 hatchery catchable rainbow (63.4%), 210 cutthroat (3.3%), 22 Dolly Varden (0.3%) and 351 whitefish (5.5%). Anglers caught an average of 0.72 fish per hour below Boulder Creek in 1977 (Table 4). Above Boulder Creek, estimated angler effort decreased 88.1% from 8,249 hours in 1976 to 984 hours in 1977. In 1976, anglers caught and kept 8,444 wild rainbow-steelhead (76.7%), 1,802 hatchery catchable rainbow (16.4%), 449 cutthroat (4.1%), 94 Dolly Varden (0.8%) and 221 whitefish (2.0%). Anglers caught an average of 1.36 fish per hour above Boulder Creek in 1976. In 1977, anglers caught and released 1,853 wild rainbow-steelhead (76.5%), 541 cut-throat (22.3%) and 28 whitefish (1.2%). Anglers caught and released an average of 2.46 fish per hour above Boulder Creek in 1977. There was also an estimated illegal harvest of 470 wild rainbow-steelhead, 39 hatchery rainbow, 112 cutthroat and 9 Dolly Varden above Boulder Creek in 1977 (Table 5).

### Species Composition

The most significant change in species composition of the harvest from the Lochsa River between 1976 and 1977 was the increased importance of hatchery catchable rainbow and the decrease in wild rainbow-steelhead (Fig. 3). In 1976, all releases of hatchery catchables were made above Boulder Creek. When this area was made catch-and-release in 1977, all hatchery catchables were released below Boulder Creek. Hatchery catchable rainbow comprised 16.7% of the total harvest in 1976 and 63.4% of the total harvest in 1977. Percent of wild rainbow-steelhead in the catch decreased from 73.0% in 1976 to 27.5% in 1977, while cutthroat decreased slightly from 4.3% in 1976 to 3.3% in 1977.

Considering only the area below Boulder Creek, which was catch-and-keep both years, we find that the percent of hatchery rainbow in the catch increased from 17.6% in 1976 to 63.4% in 1977, while wild rainbow-steelhead decreased from 63.6% to 27.5% and cutthroat decreased from 4.8% to 3.3% (Table 6).

With respect to the Lochsa River above Boulder Creek and the lower 12.9 km (8 mi) of Crooked Fork Creek, the percentage of wild rainbow-steelhead caught-and-released in 1977 (76.5%) was almost identical to that of 1976 (76.7%). However, actual numbers caught and/or caught and released decreased from 8,444 in 1976 to 1,853 in 1977 (Table 6). Percent of cutthroat in the catch increased from 4.1% in 1976 to 22.3% in 1977, with numbers caught and/or

Table 4. Comparison of estimated hours fished and harvest by anglers on the Lochsa River below Boulder Creek by 2-week intervals, 1976 and 1977 (catch-and-keep both years).

Interval	Year	Estimated hours fished	Species caught					Totals
			WRB	HRB	CT	DV	WF	
I	1976	325	67	4	4	19	34	128
	1977	945	108	392	5	5	5	515
II	1976	402	51	18	0	34	110	213
	1977	941	60	335	41	0	256	692
III	1976	821	62	12	6	9	87	176
	1977	1,072	237	528	52	0	10	827
IV	1976	851	709	154	49	39	183	1,134
	1977	1,528	388	749	0	0	0	1,137
V	1976	903	820	27	27	0	51	925
	1977	1,535	156	483	52	0	19	710
VI	1976	679	516	66	79	0	0	661
	1977	1,247	245	620	0	0	0	865
VII	1976	1,109	202	331	18	0	0	551
	1977	774	160	380	17	17	17	591
VIII	1976	340	299	143	22	0	31	495
	1977	743	388	534	43	0	44	1,009
Totals	1976	5,430	2,726	755	205	101	496	4,283
	1977	8,785	1,742	4,021	210	22	351	6,346
Percent of total	1976		63.6	17.6	4.8	2.4	11.6	
	1977		27.5	63.4	3.3	0.3	5.5	
Fish/hour	1976		.486	.135	.037	.018	.088	.764
	1977		.198	.458	.024	.002	.040	.722

Table 5. Comparison of estimated hours fished and species caught by anglers on the Lochsa River above Boulder Creek and Crooked Fork (mouth to Highway 12 Bridge) by 2-week intervals, 1976 (catch-and-keep) and 1977 (catch-and-release).

Interval	Year	Estimated hours fish	Species caught					Total
			WRB	HRB	CT	DV	WF	
I	1976 <sup>1</sup>	141	8	15	11	0	4	38
	1977 <sup>2</sup>	215	80	0	0	0	0	80
II	1976	85	107	0	0	0	0	107
	1977	12	0	0	0	0	0	0
III	1976	715	299	41	4	4	19	376
	1977	133	9	0	0	0	0	9
IV	1976	1,044	699	296	119	10	30	1,154
	1977	97	66	0	49	0	0	115
V	1976	1,667	2,276	338	94	30	20	2,758
	1977	128	45	0	22	0	0	67
VI	1976	1,541	1,611	303	53	11	37	2,015
	1977	98	758	0	208	0	28	994
VII	1976	1,706	2,043	430	88	32	8	2,601
	1977	200	664	0	169	0	0	833
VIII	1976	1,350	1,401	379	80	7	103	1,970
	1977	101	231	0	93	0	0	324
Totals	1976	8,249	8,444	1,802	449	94	221	11,010
	1977 <sup>3</sup>	984	1,853	0	541	0	28	2,422
Percent of Total	1976		76.7	16.4	4.1	0.8	2.0	
	1977		76.5	0.0	22.3	0.0	1.2	
Fish/hour	1976		1.05	.223	.056	.012	.027	1.36
	1977		1.88	.000	.550	.000	.028	2.46

<sup>1</sup>Estimates for 1976 are based on fish caught and kept.

<sup>2</sup>Estimates for 1977 are based on fish caught and released.

<sup>3</sup>We estimated an illegal harvest of 470 wild rainbow, 39 hatchery rainbow, 112 cutthroat and 9 Dolly Varden from the Lochsa above Boulder Creek in 1977.

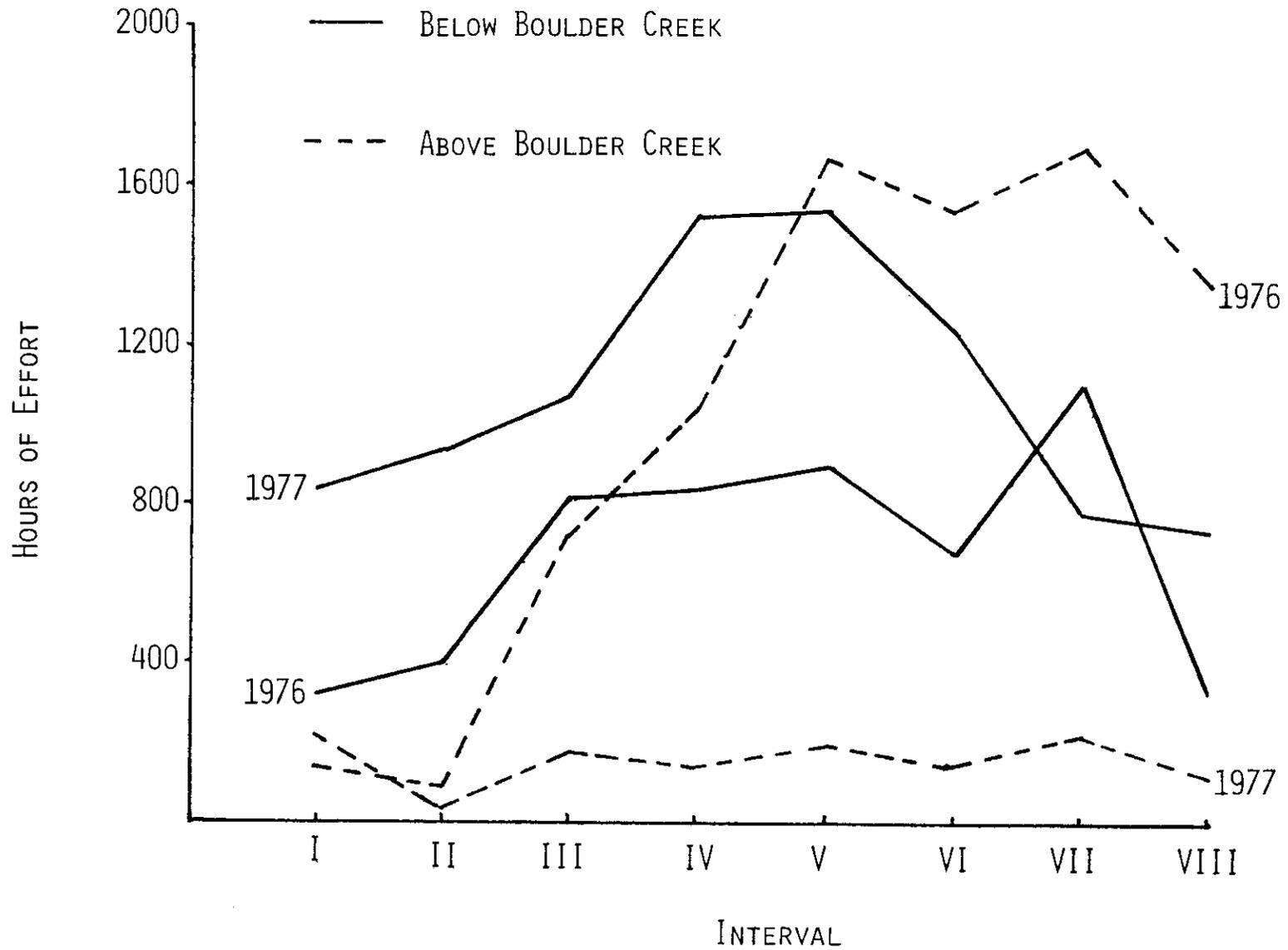


Figure 2. Comparison of estimated angler effort on the Lochsa River below and above Boulder Creek by 2-week census interval, 1976 and 1977.

released increasing from 449 to 541.

### Catch Rates

Anglers caught fish from the Lochsa River at an overall rate of 1.03 per hour in 1977 compared to 1.12 in 1976. Catch rates were best for wild rainbow-steelhead (1.05 per hour), hatchery rainbow (0.56) and cutthroat (0.22) during the first week of September in 1977. Record low flow early in the 1977 season resulted in catch rates for hatchery rainbow which were 7 to 8 times better than in 1976. The overall season catch rate for hatchery rainbow improved from 0.187 to 0.430 and wild rainbow-steelhead decreased from 0.817 to 0.450 (Table 7).

Below Boulder Creek, the overall catch rate decreased from 0.76 fish per hour in 1976 to 0.72 per hour in 1977. The major decrease in catch rate by species occurred for wild rainbow-steelhead with a decline from 0.49 to 0.20 fish per hour. This decline was compensated for by an increase in catchable rainbow catch rate from 0.14 per hour in 1976 to 0.46 in 1977 (Table 4).

Above Boulder Creek, overall catch rate increased from 1.36 fish per hour in 1976 (catch-and-keep) to 2.46 in 1977 (catch-and-release). There was a ten-fold increase in reported catch rate for cutthroat from 0.056 per hour in 1976 to 0.550 in 1977. Wild rainbow-steelhead catch rate also increased from 1.05 per hour in 1976 to 1.88 in 1977 (Table 4). As is the case in most newly established catch-and-release areas, the majority of anglers fishing above Boulder Creek in 1977 were the "expert" fly fishermen. The percent of anglers fishing with artificial flies above Boulder Creek increased from approximately 30% in 1976 to 93.3% in 1977. This would explain in part the much higher catch rates.

### Length Frequencies

We measured a total of 174 wild rainbow-steelhead from the Lochsa River during 1977. They ranged from 110 to 380 mm (4.3 - 15.0 in) and averaged 196 mm (7.7 in) total length. During 1976, we measured 887 wild rainbow-steelhead ranging from 102 to 356 mm (4.0 - 14.0 in) and averaging 198 mm (7.8 in) total length. In 1977, 36.8% of the wild rainbow-steelhead measured were over 203 mm (8 in) compared to 28.7% in 1976 (Fig. 4). Twenty-six cutthroat ranging from 170 to 370 mm (6.7 - 14.6 in) and averaging 266 mm (10.5 in) were measured from the Lochsa in 1977. Sixty-one cutthroat measured in 1976 averaged 254 mm (10.0 in). In 1977, 42.3% of the cutthroat measured were over 254 mm (10.0 in) compared to 37.7% in 1976.

### Angler Residency

We interviewed a total of 589 anglers (82 above Boulder Creek) on the Lochsa River during 1977. Of these, 77.4% were residents compared to 77.8% residents in 1976. In the catch-and-release area above Boulder Creek, 40.2% of the anglers interviewed during 1977 were nonresidents. During 1976, when the area above Boulder Creek was catch-and-keep, 23.2% of the people interviewed were nonresidents. Below Boulder Creek, which was catch-and-keep both years, 19.7% were nonresidents in 1977 compared to 20.4% in 1976 (Table 8).

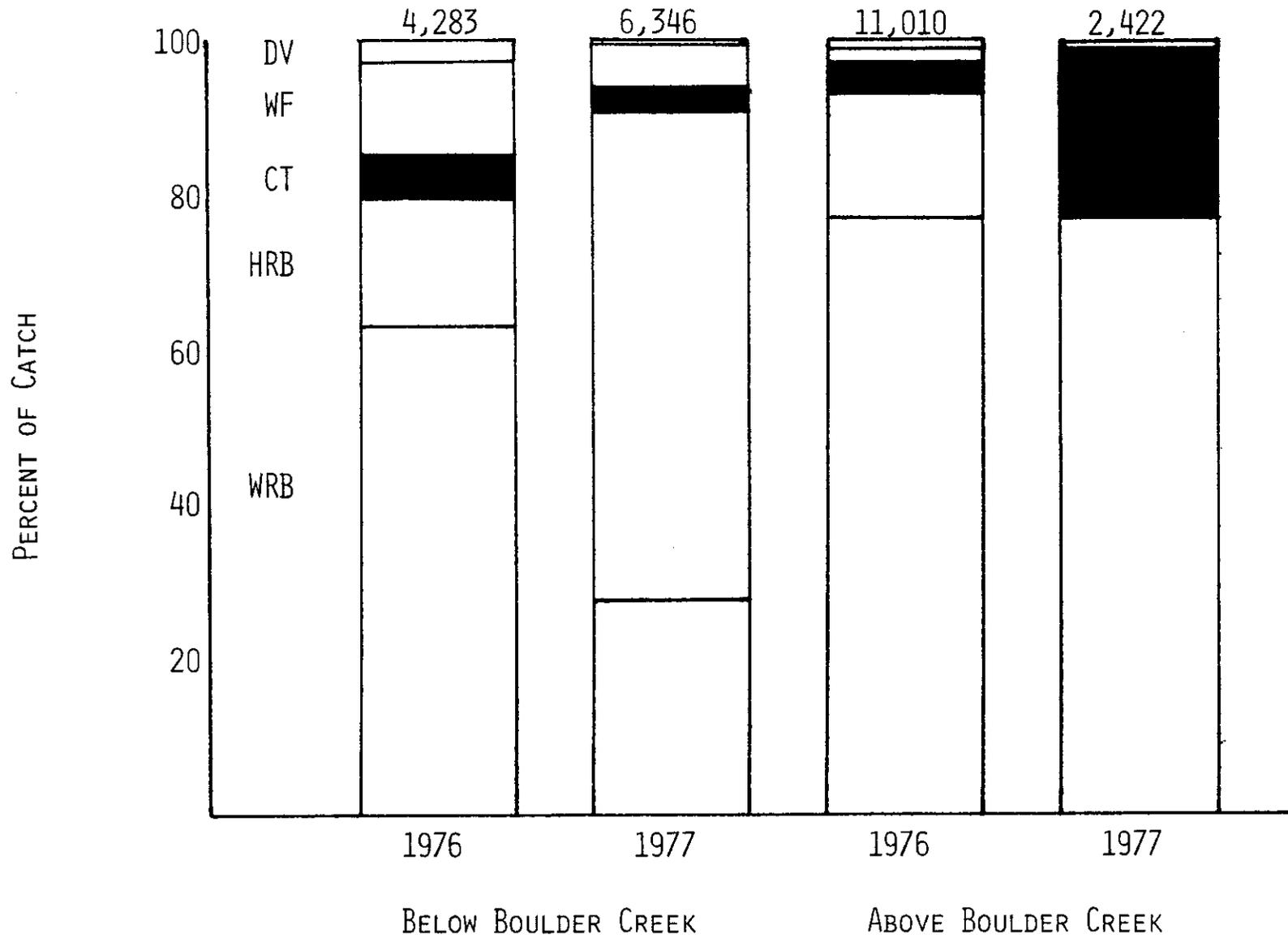


Figure 3. Comparison of species composition of the angler catch and total estimated catch from the Lochsa River above and below Boulder Creek, 1976 and 1977.

Table 6. Comparison of percent composition of catch by stream section in the Lochsa River, 1976 and 1977

Stream Section	Year	Percent of catch by species				
		WRB	HRB	CT	DV	WF
1	1976 <sup>1</sup>	49.0	28.5	8.7	0.9	12.9
	1977 <sup>2</sup>	20.4	71.1	5.7	0.7	2.1
2	1976	73.2	5.6	2.8	1.9	16.5
	1977	52.3	27.9	3.2	0.3	16.3
3	1976	64.8	26.5	3.4	5.3	0.0
	1977	17.1	80.4	1.0	0.0	1.5
4 <sup>3</sup>	1976	75.3	16.6	4.7	0.7	2.6
	1977	73.6	0.0	24.8	0.0	1.6
5 <sup>3</sup>	1976	84.9	9.4	3.5	0.4	1.8
	1977	85.4	0.0	14.6	0.0	0.0
6 <sup>3</sup>	1976	65.6	29.6	2.4	2.4	0.0
	1977	66.7	0.0	33.3	0.0	0.0
Total	1976	73.0	16.7	4.3	1.3	4.7
	1977	27.5	63.4	3.3	0.3	5.5

<sup>1</sup>All hatchery catchable rainbow were released above Boulder Creek in 1976.

<sup>2</sup>All hatchery catchable rainbow were released below Boulder Creek in 1977.

<sup>3</sup>These sections were regulated on a catch-and-release basis in 1977 and percentages are for fish caught and released.

Table 7. Comparison of catch rates by anglers on the Lochsa River and lower eight miles of Crooked Fork Creek by 2-week intervals, 1976 and 1977

Interval	Year	Catch per hour by species					Total
		WRB	HRB	CT	DV	WF	
I	1976	.155	.052	.041	.041	.124	.414
	1977*	.162	.405	.012	.012	.012	.601
II	1976	.268	.062	.000	.082	.227	.680
	1977*	.126	.434	.056	.000	.322	.951
III	1976	.232	.043	.009	.017	.133	.433
	1977*	.286	.346	.047	.007	.013	.698
IV	1976	.679	.245	.085	.019	.085	1.11
	1977*	.274	.548	.151	.000	.000	.973
V	1976	1.18	.178	.056	.015	.020	1.47
	1977*	.150	.289	.043	.000	.011	.492
VI	1976	.982	.216	.047	.007	.018	1.27
	1977*	.690	.483	.129	.000	.017	1.32
VII	1976	1.02	.305	.050	.027	.004	1.41
	1977*	.803	.438	.175	.015	.029	1.46
VIII	1976	1.02	.261	.071	.005	.076	1.43
	1977*	1.05	.556	.224	.000	.039	1.87
Totals	1976	.817	.187	.048	.014	.052	1.12
	1977*	.450	.430	.101	.004	.046	1.03

\*Includes catch-and-release rates.

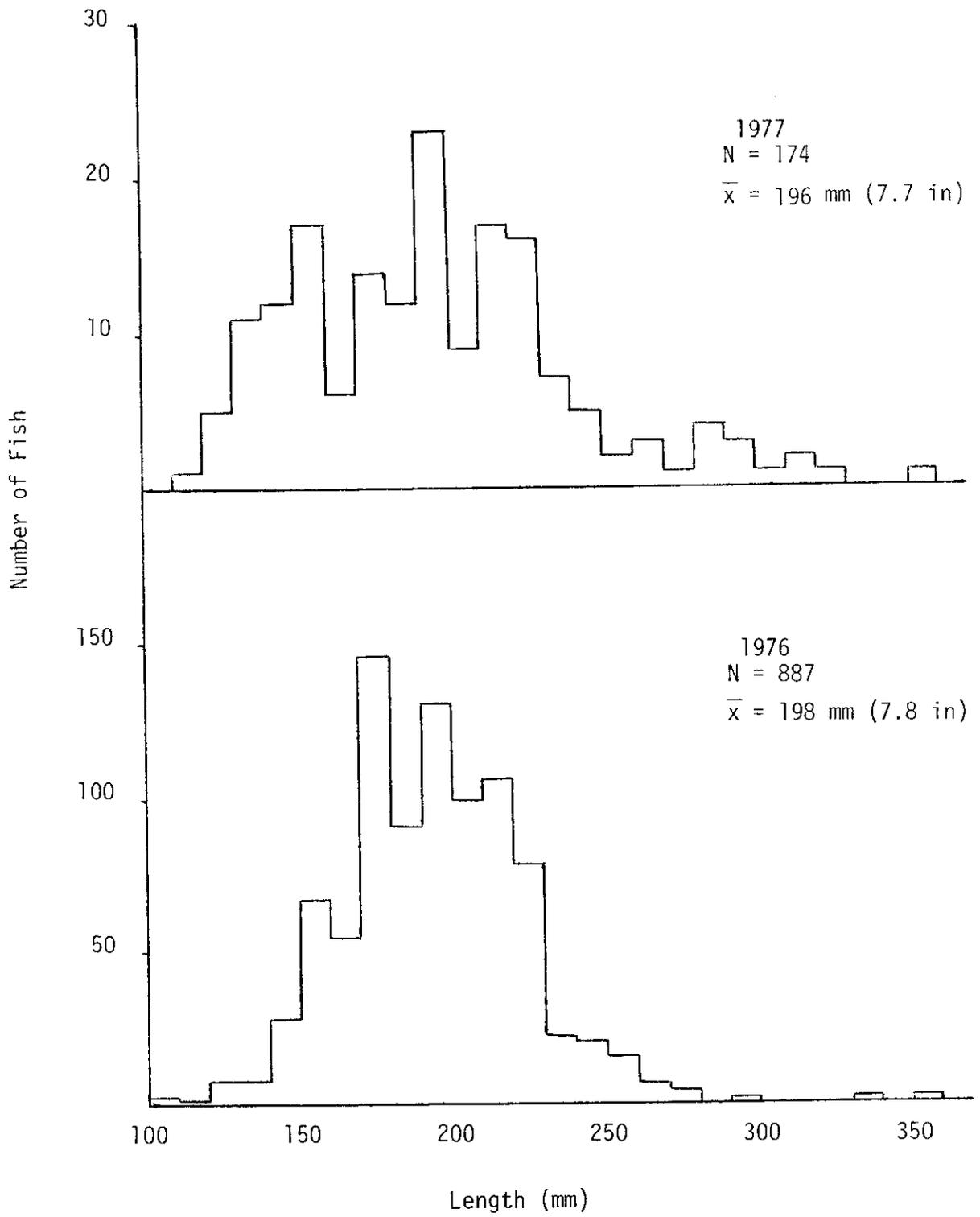


Figure 4. Length frequencies of wild rainbow-steelhead measured from the Lochsa River in 1976 and 1977.

## Angler Methods and Opinions

The angling methods survey conducted on the Lochsa River in 1977 indicated that 54.2% of the anglers interviewed used bait, 19.5% artificial lures and 26.3% artificial flies. This compared to 46.0% bait, 24.7% artificial lures and 29.5% artificial flies in 1976. Considering areas above and below Boulder Creek separately, we found that 61.2% of the anglers fishing below Boulder Creek used bait, 22.3% lures and 16.5% flies. In the catch-and-release area above Boulder Creek, 93.3% used flies in 1977 (Table 9).

When asked to rate fishing on the Lochsa River in 1977, 21.2% rated it good, 47.5% fair and 31.3% poor. In 1976, 23.4% rated it good, 40.8% fair and 35.8% poor. Sixty percent of the anglers fishing above Boulder Creek in 1977 considered fishing good, 40% fair and none rated fishing as poor. Below Boulder Creek, 15.5% thought fishing was good, 48.5% fair and 36.0% poor (Table 9).

When asked if they were in favor of the catch-and-release regulation as a means of increasing the cutthroat population in the Lochsa River, 39.5% said yes, 33.9% no and 27.1% had no opinion in 1977. In 1976, before the catch-and-release regulation was imposed, 53.3% were in favor of it, 26.4% were opposed and 20.3% had no opinion. Above Boulder Creek, 86.7% of the anglers interviewed in 1977 were in favor of the catch-and-release regulation, none opposed and 13.3% had no opinion (Table 9).

## Snorkeling

University of Idaho researchers observed increased numbers of cutthroat trout established snorkel transects above Boulder Creek in 1977. Mabbott (1978) observed 1.70, 1.67 and 1.55 cutthroat per 100 m of stream in transects below Warm Springs Creek and above and below Pappoose Creek during 1977. No cutthroat were seen in these areas in 1976 or 1975. Numbers of Age II and older juvenile steelhead were down in all transects above Boulder Creek during 1977 (Table 10). However, this was probably due to the very low escapement of wild adult steelhead to the Lochsa drainage during 1975. Pettit (1977) estimated only 900 adults escaped to the Lochsa and Selway in 1975.

## DISCUSSION

The introduction of a catch-and-release regulation for trout on the Lochsa River above Boulder Creek in 1977 was at least partially responsible for an 88% reduction in angler effort in this area, as compared to the catch-and-keep season of 1976. Ball (1971) noted a 96.7% decrease in "fishing intensity" on Kelly Creek from 1969 (general catch-and-keep regulations) to 1970 (the first year of catch-and-release). Bjornn and Thurow (1974) noted a 72% decrease in estimated angler effort on the St. Joe River from Gold Creek to Spruce Tree Campground between 1968 (general regulation) and 1971 (first year of three trout over 13 in).

Researchers on Kelly Creek and the St. Joe River have noted a steady increase in anglers fishing the special regulation areas since the initial decline. Hogander, Bjornn and Pettit (1974) noted an increase in anglers interviewed on Kelly Creek from 56 in 1970 to 96 in 1973. Bjornn and Thurow (1974) noted an increase in angler effort from 1,556 hours in 1971 to

Table 8. Comparison of percent of nonresident anglers fishing the Lochsa River above and below Boulder Creek by 2-week interval, 1976 and 1977

Interval	Lochsa below Boulder Creek		Lochsa above Boulder Creek		Total	
	<u>1976</u>	<u>1977</u>	<u>1976</u>	<u>1977</u>	<u>1976</u>	<u>1977</u>
I	15.6	7.1	0.0	16.7	10.2	7.9
II	5.9	7.4	0.0	0.0	5.6	7.0
III	13.6	16.7	29.3	25.0	21.4	17.8
IV	11.1	19.3	25.0	31.2	19.7	21.9
V	30.0	29.0	13.9	28.6	17.0	29.0
VI	36.4	20.5	32.7	50.0	33.3	25.0
VII	25.0	46.5	21.5	66.7	22.2	50.9
VIII	30.3	19.0	18.0	66.7	22.9	27.1
Totals	20.4	19.7	23.2	40.2	22.2	22.6

Table 9. Angling methods and angler opinion information collected on the Lochsa River, 1976 and 1977

		1977		
		1976	Below Boulder Creek	Above Boulder Creek
Method:	Bait	46.0%	61.2%	6.7%*
	Artificial lure	24.7%	22.3%	0.0%
	Artificial fly	29.3%	16.5%	93.3%
Rate fishing:	Good	23.4%	15.5%	60.0%
	Fair	40.8%	48.5%	40.0%
	Poor	35.8%	36.0%	0.0%
Restrictive regulations to restore cutthroat:				
	Yes	53.3%	32.4%	86.7%
	No	26.4%	39.2%	0.0%
	No opinion	20.3%	28.4%	13.3%

\*Illegal

Table 10. Densities of salmonids (fish/100m) in snorkel sections in the Lochsa River, 1975, 1976 and 1977 (Graham 1977 and Mabbott 1978).

Section location	Dates snorkeled	Rainbow	Juvenile steelhead		Trout fry	Juvenile chinook	Cutthroat
			II and older	I			
Below Pete King Creek	8-10-75	1.00	0.50			0.16	
	8-30-76						
	7-15-77	5.33	0.67	0.33			
Above Pete King Creek	8-15-77	4.62					
	8-10-75	0.17	0.50		0.33		
	8-30-76	0.33	0.33				0.17
Below Canyon Creek	7-15-77	3.00		0.33			0.67
	8-15-77	3.67					
	8-11-75	0.77			0.38		
Above Canyon Creek	8-30-76		0.77				
	7-15-77	4.62	0.40			0.40	
	8-11-75		0.40				0.81
Below Deadman Creek	8-30-76		0.40				
	7-15-77	19.35	0.81	0.81			
	8-12-75	1.00	1.75		1.50	0.50	
Above Deadman Creek	8-19-76					0.75	0.50
	7-15-77	7.50	1.00	0.50			
	8-16-77	4.00					
Below Old Man Creek	8-12-75	0.37	0.37				
	8-19-76					2.22	
	7-15-77	1.48				0.74	
Above Old Man Creek #1	8-16-77	1.48					
	8-13-75		2.98		4.47		
	8-18-76		0.85		0.21		
Above Old Man Creek #2	7-15-77	0.43	1.70			5.11	
	8-13-75		1.16				
	9-3-75	1.00					
Above Old Man Creek #2	9-19-75						
	8-18-76		1.00				
	7-15-77		1.00				
	9-3-75		1.00				
	9-19-75						
	8-18-76		3.00				
	7-15-77		2.00			4.00	

Table 10. Densities of salmonids (fish/100m) in snorkel sections in the Lochsa River, 1975, 1976 and 1977  
(Graham 1977 and Mabbott 1978)-continued

Section location	Dates snorkeled	Rainbow	Juvenile steelhead		Trout fry	Juvenile chinook	Cutthroat
			II and older	I			
Below Fish Creek	8-14-75	5.32	10.64	3.19	1.06	0.53	
	8-18-76		9.57		1.06	0.53	
	7-19-77	2.66	1.60	0.53			
Above Fish Creek	8-16-77	1.06	1.06			1.06	
	8-14-75	7.92	15.42	3.33	4.17	5.42	
	8-18-76		3.75	0.42	0.83	3.75	
	7-19-77	2.92	2.08	1.25	0.42	4.17	
Below Boulder Creek	8-16-77	3.33	2.08	0.42		1.67	
	8-15-75	4.78	13.04	5.22	2.17	1.74	
	8-17-76	2.61	3.04				
Above Boulder Creek	7-19-77	6.09	0.87	0.87			
	8-15-75	0.59	15.98	7.10	6.51	1.18	
	8-17-76	15.98	4.73			1.18	
Below Stanley Creek	7-19-77	7.69	3.55	0.59			
	9-3-75	1.52	12.12	2.27			
	9-19-75	0.76	18.18	3.03	3.79	0.76	
	8-16-76	4.55	6.06		12.12	6.06	
Above Stanley Creek	7-19-77	2.27	5.30	0.76		0.76	
	9-3-75		3.53	0.59	4.12		
	9-19-75		7.06	2.35	1.76		
	8-16-76		6.47		7.65	4.12	0.59
Below Indian Grave Creek	7-21-77	1.76	4.71	0.59			0.59
	8-16-75	0.39	2.73	1.17	4.30		
	8-14-76		5.08		7.03	8.59	
	7-19-77		3.13	1.17	2.34		
	8-24-77	0.39			0.39	0.78	
Above Indian Grave Creek	8-16-75	0.84	10.12	2.60	14.45		
	8-14-76		6.94		0.58		
	7-19-77	1.16	4.05	1.16			
	8-24-77						
Below Weir Creek	8-17-75	1.41	3.95	0.85	2.82		
	8-14-76	1.13	3.39	0.56			
	7-20-77	0.56	2.26	1.13	0.56		0.56

Table 10. Densities of salmonids (fish/100m) in snorkel sections in the Lochsa River, 1975, 1976 and 1977 (Graham 1977 and Mabbott 1978)-continued.

Section location	Dates snorkeled	Rainbow	Juvenile steelhead		Trout fry	Juvenile chinook	Cutthroat
			II and older	I			
Above Lake Creek	8-31-75						
	9-19-75						
	8-12-76					1.25	
Below Warm Springs Creek	7-20-77			3.75	12.50		
	8-31-75	5.68	5.68	1.70		1.70	
	8-12-76	17.05	7.95	1.14		4.55	
Above Squaw Creek	7-20-77	5.11	1.70	0.57	0.57		1.70
	8-31-75						
	8-9-76		0.97			4.85	
Below Papoose Creek	7-20-77		0.97	1.94	1.94	1.94	
	8-31-75		0.83	1.67		3.33	
	9-20-75		0.83			1.67	
Above Papoose Creek	8-9-76		4.17			1.67	
	7-20-77	1.67	1.67	1.67			1.67
	8-31-75		6.20	7.75		3.88	
	9-19-75	0.78	4.65	3.88	0.78	5.43	
Above Papoose Creek	8-9-76	1.55	10.08			5.43	
	7-20-77	2.33	4.65	3.88		11.63	1.55

5,100 hours in 1973. Since the Lochsa is more accessible than these other streams, we would expect a similar or faster resurgence in angler participation in the new catch-and-release section of the Lochsa River as fish quality improves in the future.

Even though there was a great decrease in fishing pressure above Boulder Creek, anglers were not entirely displaced from the Lochsa River. This is evidenced by the 61.8% increase in fishing pressure below Boulder Creek. Because of the concentration of all hatchery catchable plants below Boulder Creek in 1977, anglers who were displaced downstream to the catch-and-keep area enjoyed better fishing than in 1976. Anglers caught 0.46 hatchery catchables per hour below Boulder Creek in 1977 compared to 0.14 per hour in 1976.

Ball (1971) estimated an increase in overall catch rate from 3.4 to 6.2 fish per hour in Kelly Creek from 1969 (catch-and-keep) to 1970 (catch-and-release), with cutthroat catch rate increasing from 0.21 per hour to 0.36 per hour. Hogander et al. (1974) recorded a catch rate of 0.86 cutthroat per hour in Kelly Creek in 1973, while Johnson and Bjornn (1975) report a catch rate of 3.6 cutthroat per hour in Kelly Creek during 1974. On the St. Joe River from Gold Creek to Spruce Tree Campground, Bjornn and Thurow (1974) noted an increase in catch rate from 0.82 trout per hour in 1968 to 4.85 trout per hour in 1973. On the Lochsa River above Boulder Creek, the "actual" catch rate for cutthroat trout was 0.056 fish per hour in 1976, while the "angler reported" catch rate for cutthroat was 0.550 per hour in 1977. As in most newly created catch-and-release fisheries, the majority of anglers participating on the Lochsa during 1977 were the "expert" fly fishermen which would account in part for the increased catch rate. We found that 93.3% of anglers fishing above Boulder Creek in 1977 used flies while only 30% used flies in 1976.

Adult returns of wild steelhead to the upper Clearwater drainage (Lochsa and Selway Rivers) have been declining over the past several years reaching a low of an estimated 900 fish in 1975 (Pettit 1977). The catch-and-release regulation above Boulder Creek saved an estimated 9,000 wild rainbow-steelhead in the Lochsa River during 1977. Assuming a smolt-to-adult return ratio of 1 to 2%, this could result in an increased adult return of from 90 to 180 wild steelhead.

Snorkeling in established transect areas in the Lochsa River above Boulder Creek revealed increased numbers of cutthroat during 1977, as compared to 1975 and 1976. Mabbott (1977) counted 9 cutthroat in 13 transects above Boulder Creek during July and August of 1977, compared to 1 in 11 transects in 1976 and 2 in 22 transects in 1975. Record low flows in the Lochsa during 1977 undoubtedly had some effect on the distribution and density of cutthroat. Snorkel counts in a more normal flow year in 1978 should provide better information on the true status of the Lochsa cutthroat trout population.

It is not possible after only 1 year of the catch-and-release regulation above Boulder Creek to evaluate the success of this program in bringing about an increase of cutthroat in the Lochsa River. We have, however, already derived several benefits from the program.

1. Better utilization of hatchery catchable rainbow by concentrating 25

releases below Boulder Creek (34.1% harvest in 1977 compared to 20.2% in 1976).

2. Increased numbers of cutthroat counted in snorkel transects above Boulder Creek (9 in 13 transects in 1977 compared to 1 in 11 in 1976 and 2 in 22 in 1975).
3. Reduced harvest of juvenile wild rainbow-steelhead by 9,000 fish (from 11,170 in 1976 to 2,212 in 1977).
4. Increased catch rates for hatchery catchables below Boulder Creek (0.46 per hour in 1977 compared to 0.14 in 1976).
5. Increased catch rate for cutthroat above Boulder Creek (0.55 per hour in 1977 compared to 0.056 in 1976).

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A P P E N D I X  
2 7

Table 1. Estimated hours fished and harvest by anglers on the Lochsa River (Section 1 - mouth to Split Creek) by 2-week intervals, 28 May-10 September, 1977

Interval starting date	Estimated hours fished	Species caught					Total
		WRB	HRB	CT	DV	WF	
28 May	695	108	293	0	0	0	401
11 June	465	20	78	20	0	20	138
25 June	433	69	208	35	0	0	312
9 July	698	39	310	0	0	0	349
23 July	823	99	263	33	0	0	395
6 August	601	29	159	0	0	0	188
20 August	419	34	151	17	17	0	219
3 September	313	94	250	31	0	31	406
Totals	4,447	492	1,712	136	17	51	2,408
Percent of total		20.4	71.1	5.7	0.7	2.1	
Fish/hour		.111	.385	.031	.004	.011	.541

Table 2. Estimated hours fished and harvest by anglers on the Lochsa River (Section 2 - Split Creek to Fish Creek) by 2-week intervals, 28 May-10 September, 1977

Interval starting date	Estimated hours fished	Species caught					Total
		WRB	HRB	CT	DV	WF	
28 May	175	0	69	5	5	5	84
11 June	280	11	0	11	0	226	248
25 June	268	77	0	5	0	10	92
9 July	354	290	0	0	0	0	290
23 July	370	37	19	19	0	19	94
6 August	296	155	180	0	0	0	335
20 August	237	100	115	0	0	0	215
3 September	220	186	74	12	0	6	278
Totals	2,200	856	457	52	5	266	1,636
Percent of total		52.3	27.9	3.2	0.3	16.3	
Fish/hour		.389	.208	.024	.002	.121	.744

Table 3. Estimated hours fished and harvest by anglers on the Lochsa River (Section 3 - Fish Creek to Boulder Creek) by 2-week intervals, 28 May-10 September, 1977

Interval starting date	Estimated hours fished	Species caught					Total
		WRB	HRB	CT	DV	WF	
28 May	75	0	30	0	0	0	30
11 June	196	29	257	10	0	10	306
25 June	371	91	320	12	0	0	423
9 July	476	59	439	0	0	0	498
23 July	342	20	201	0	0	0	221
6 August	350	61	281	0	0	0	342
20 August	118	26	114	0	0	17	157
3 September	210	108	210	0	0	7	325
Totals	2,138	394	1,852	22	0	34	2,302
Percent of total		17.1	80.4	1.0	0.0	1.5	
Fish/hour		.184	.866	.010	.000	.016	1.08

Table 4. Estimated hours fished and harvest by anglers on the Lochsa River (Section 4 - Boulder Creek to Warmspring Creek) by 2-week intervals, 28 May-10 September, 1977

Interval starting date	Estimated hours fished	Species caught					Total
		WRB	HRB	CT	DV	WF	
28 May	0 (109)*	0	0	0	0	0	0 (0)
11 June	20 (0)	120 (0)	0	40 (0)	0	0	160 (0)
25 June	32 (102)	46 (9)	0	9 (0)	9 (0)	0	64 (9)
9 July	37 (41)	0 (33)	25 (0)	41 (49)	0	0	66 (82)
23 July	44 (67)	44 (45)	0	0 (22)	0	0	44 (67)
6 August	42 (90)	56 (748)	14 (0)	0 (208)	0	0 (28)	70 (984)
20 August	26 (71)	52 (195)	0	17 (53)	0	0	67 (248)
3 September	21 (72)	37 (231)	0	5 (93)	0	0	42 (324)
Totals	222 (552)	355 (1261)	39 (0)	112 (425)	9 (0)	0 (28)	513 (1714)
Percent of total		69.2 (73.6)	7.6 (0.0)	21.8 (24.8)	1.8 (0.0)	0.0 (1.6)	
Fish/hour		1.60 (2.28)	.176 (0.0)	.504 (.770)	.041 (0.0)	0.0 (.051)	2.31 (3.11)

\*Figures in parentheses are catch-and-release effort and harvest.

Table 5. Estimated hours fished and harvest by anglers on the Lochsa River (Section 5 - Warm Spring Creek to Crooked Fork) by 2-week intervals, 28 May-10 September, 1977

Interval starting date	Estimated hours fished	Species caught					Total
		WRB	HRB	CT	DV	WF	
28 May	0 (106)*	0 (80)	0	0	0	0	0 (80)
11 June	0 (12)	No angler interviews obtained.					
25 June	0 (31)	No angler interviews obtained.					
9 July	0 (33)	0 (33)	0	0	0	0	0 (33)
23 July	22 (23)	44 (0)	0	0	0	0	44 (0)
6 August	2.5 (7.5)	5 (10)	0	0	0	0	5 (10)
20 August	0 (118)	0 (425)	0	0 (94)	0	0	0 (519)
3 September	0 (19)	No angler interviews obtained.					
Totals	24.5 (349.5)	49 (548)	0 (0)	0 (94)	0 (0)	0 (0)	49 (642)
Percent of total		100.0 (85.4)	0.0 (0.0)	0.0 (14.6)	0.0 (0.0)	0.0 (0.0)	
Fish/hour		2.00 (1.57)	0.0 (0.0)	0.0 (.269)	0.0 (0.0)	0.0 (0.0)	2.00 (1.84)

\*Figures in parentheses are catch-and-release effort and harvest.

Table 6. Estimated hours fished and harvest by anglers on the Crooked Fork Creek (Section 6 - mouth to Highway 12 Bridge) by 2-week intervals, 28 May-10 September, 1977

Interval starting date	Estimated hours fished	Species caught					Total
		WRB	HRB	CT	DV	WF	
28 May	0 (0)*	No anglers counted or interviewed.					
11 June	0 (0)	No anglers counted or interviewed.					
25 June	11 (0)	66 (0)	0	0	0	0	66 (0)
9 July	0 (23)	No angler interviews obtained.					
23 July	0 (38)	No angler interviews obtained.					
6 August	0 (0)	No anglers counted or interviewed.					
20 August	0 (11)	0 (44)	0	0 (22)	0	0	0 (66)
3 September	0 (10)	No angler interviews obtained.					
Totals	11 (82)	66 (44)	0 (0)	0 (22)	0 (0)	0 (0)	66 (66)
Percent of total		100.0 (66.7)	0.0 (0.0)	0.0 (33.3)	0.0 (0.0)	0.0 (0.0)	
Fish/hour		6.00 (.537)	0.0 (0.0)	0.0 (.268)	0.0 (0.0)	0.0 (0.0)	6.00 (.805)

\*Figures in parentheses are catch-and-release effort and harvest.

Table 7. Location and physical characteristics of snorkel sections in the Lochsa River.

Drainage and stream	Section location	River kilometer	Dates surveyed	Temp. °C		Section	
				Max.	Min.	Total length (m)	Description
<u>Lochsa River - Lower</u>							
	Below Pete King Cr.	2.4	10 Aug. 1975 30 Aug. 1976			600.	long pool, .9-1.2 m deep
	Above Pete King Cr.	4.0	10 Aug. 1975 30 Aug. 1976	19.0 19.0	16.0 16.5	600.	long pool, 1.5-1.8 m deep
	Below Canyon Cr.	12.9	11 Aug. 1975 30 Aug. 1976			260.	upper end of deep pool
	Above Canyon Cr.	13.7	11 Aug. 1975 30 Aug. 1976	21.0 19.0	16.5 16.5	248.	broken run, deep pool
	Below Deadman Cr.	17.7	12 Aug. 1975 19 Aug. 1976			400.	long run, .6-1.2 m deep
	Above Deadman Cr.	18.5	12 Aug. 1975 19 Aug. 1976	21.5 18.0	16.5 14.5	270.	pool-run
	Below Old Man Cr.	29.0	13 Aug. 1975 19 Aug. 1976			470.	long, deep pool
	Above Old Man Cr. -1	29.8	13 Aug. 1975 9 Sept. 1975 19 Sept. 1975	20.0	16.5	600. 100.	long, deep pool upper end of pool
	Above Old Man Cr. -2	29.8	19 Aug. 1976 9 Sept. 1975 19 Sept. 1975 19 Aug. 1976	17.0	14.5	100.	broken run
<u>Lochsa River - Middle</u>							
	Below Fish Cr.	41.0	14 Aug. 1975 18 Aug. 1976			188.	run, .6-1.2 m deep
	Above Fish Cr.	41.0	14 Aug. 1975 18 Aug. 1976	20.0 15.5	16.0 13.0	240.	run, .6-1.2 m deep
	Below Boulder Cr.	42.6	15 Aug. 1975 18 Aug. 1976			230.	deep pool
	Above Boulder Cr.	44.3	15 Aug. 1975 18 Aug. 1976	20.0 15.5	15.0 13.0	169.	broken run, .6-.9 m deep

Table 7. Continued

Drainage and stream	Section location	River kilometer	Dates surveyed	Temp. °C		Section	
				Max.	Min.	Total length (m)	Description
	Below Stanley Cr.	52.3	3 Sept. 1975 19 Sept. 1975 19 Aug. 1976			132.	broken run
	Above Stanley Cr.	60.4	3 Sept. 1975 19 Sept. 1975 19 Aug. 1976	15.0	12.5	170.	pool-run
	Below Indian Grave Cr.	70.0	16 Aug. 1975 14 Aug. 1976			256.	run into pool
	Above Indian Grave Cr.	71.6	16 Aug. 1975 14 Aug. 1976	20.0 17.0	12.0 13.5	346.	pool
	Below Weir Cr.	74.8	17 Aug. 1975 14 Aug. 1976	18.0 17.0	14.0 13.5	354.	broken run-deep pool
<u>Lochsa River - Upper</u>							
	Above Lake Cr.	79.7	31 Aug. 1975 19 Sept. 1975 12 Aug. 1976	16.0 18.0	9.0 12.0	80.	shallow run
	Below Warm Springs Cr.	90.1	31 Aug. 1975 12 Aug. 1976	16.0 16.5	9.0 12.5	176.	broken pool, .9-1.5 m deep
	Above Squaw Cr.	96.6	31 Aug. 1975 9 Aug. 1976	15.0 16.0	10.0 12.5	103.	run
	Below Papoose Cr.	99.0	31 Aug. 1975 20 Sept. 1975 9 Aug. 1976			120.	deep pool
	Above Papoose Cr.	105.4	31 Aug. 1975 19 Sept. 1975 9 Aug. 1976	10.5 16.0	8.0 11.0	129.	broken run

Table 8. Summary of Lochsa River snorkel transect counts for 1973

Date	Transect location	Species counted								Total
		RB >200mm	SH Age II	SH Age I	Trout fry	Juvenile chinook	CT	DV	WF	
6/12/73	Pool above Deadman Creek	0	2	0	0	0	0	0	4	6
	Pool 1.5 miles above Big Stew Creek	4	30	5	0	0	0	0	6	45
	Pool below Skookum Creek	1	32	8	0	0	0	0	7	48
	Run above Post Office Creek	0	0	0	0	0	0	0	0	0
	Pool at Colgate Lick	0	0	0	0	0	0	0	6	6
	Run below Papoose Creek	1	0	0	0	0	0	0	2	3
7/5/73	Pool above Deadman Creek	1	11	0	0	0	0	0	10	22
	Pool above Old Man Creek	2	0	0	0	3	0	0	22	27
	0.7 mile below Lochsa Ranger Station	2	8	3	0	0	2	0	8	23
	Pool below Skookum Creek	3	16	5	0	0	2	0	7	33
	Run above Post Office Creek	1	0	0	0	0	0	0	3	4

Table 8. Summary of Lochsa River snorkel transect counts for 1973 (continued)

Date	Transect location	Species counted								Total
		RB >200MM	SH Age II	SH Age I	Trout fry	Juvenile chinook	CT	DV	WF	
7/17/73	Pool above Deadman Creek	3	0	0	0	0	0	0	6	9
	0.7 mile below Lochsa Ranger Station	3	0	0	0	0	0	0	10	13
	Pool below Skookum Creek	5	0	0	0	0	0	0	20	25
	Run above Post Office Creek	2	2	0	0	0	0	0	0	4
	Pool at Colgate Lick	4	4	0	0	0	0	0	6	14
	Pool above Badger Creek	10	5	0	0	0	0	0	13	28
	Run below Papoose Creek	14	9	4	0	0	0	0	20	47
8/1/73	Pool above Deadman Creek	0	0	0	0	1	0	0	17	18
	Pool below Split Creek Bridge	4	8	2	0	0	0	0	27	41
	0.7 mile below Lochsa Ranger Station	3	8	0	0	1	0	0	11	23
	Pool below Skookum Creek	2	4	0	0	1	0	0	25	32

Table 8. Summary of Lochsa River snorkel transect counts for 1973 (continued)

Date	Transect location	Species counted							Total	
		>200mm	Age II	Age I	Trout fry	Juvenile chinook	CT	DV		WF
8/1/73 (cont)	Run above Post Office Creek	2	6	2	0	0	0	0	0	10
	Pool at Colgate Lick	2	4	0	0	19	0	0	48	73
	Run below Papoose Creek	8	5	0	0	1	0	0	13	27
8/28/73	Pool above Deadman Creek	1	1	0	0	0	0	0	10	12
	Pool below Split Creek Bridge	2	5	2	0	0	0	0	18	27
	0.7 mile below Lochsa Ranger Station	1	3	0	0	0	0	0	4	8
	Pool below Skookum Creek	2	5	0	2	1	0	0	83	93
	Pool at Colgate Lick	2	11	4	12	0	0	0	200	229
	Run below Papoose Creek	10	10	2	21	20	0	0	20	83

Table 9. Summary of Lochsa River snorkel transect counts for 1974

Date	Transect location	Species counted								Total
		RB >200mm	SH Age II	SH Age I	Trout fry	Juvenile chinook	CT	DV	WF	
7/19/74	Pool above Deadman Creek	0	0	0	0	0	0	0	-	0
	Pool below Split Creek Bridge	0	8	0	0	0	2	0	-	10
	Pool above Old Man Creek	0	9	1	0	6	0	0	-	16
	0.7 mile below Lochsa Ranger Station	0	9	0	0	1	3	0	-	13
	Pool below Skookum Creek	0	6	0	0	3	0	0	-	9
	Pool at Colgate Lick	0	12	0	0	5	1	0	-	18
	Run below Papoose Creek	0	2	0	0	8	0	0	-	10
7/25/74	I	0	1	0	0	0	0	0	-	1
	II	0	13	0	0	1	0	0	-	14
	III	0	2	0	0	3	0	0	-	5
	IV	0	6	0	0	0	2	0	-	8
	V	0	15	4	0	5	1	0	-	25
	VI	0	5	0	0	0	0	0	-	5
	VII	0	7	0	0	7	0	0	-	14

Table 9. Summary of Lochsa River snorkel transect counts for 1974 (continued)

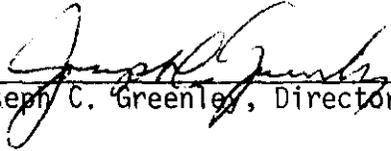
Date	Transect location	Species counted									Total
		RB ≥200mm	SH Age II	SH Age I	Trout fry	Juvenile chinook	CT	DV	WF		
8/15/74	I	0	1	0	0	0	0	0	-	1	
	II	0	5	0	0	2	0	0	-	7	
	III	0	0	0	0	0	0	0	-	0	
	IV	0	1	0	0	4	2	0	-	7	
	V	0	5	0	0	8	2	0	-	15	
	VI	0	6	0	0	3	0	0	-	9	
	VII	0	1	0	0	19	0	0	-	20	
40 8/21/74	I	0	0	0	0	0	0	0	-	0	
	II	0	3	0	0	0	0	0	-	3	
	III	0	5	0	0	0	0	0	-	5	
	IV	0	4	0	0	3	0	0	-	7	
	V	0	8	0	0	0	1	0	-	9	
	VI	0	6	0	0	3	2	0	-	11	
	VII	3	6	0	0	11	2	0	-	22	

Submitted by:

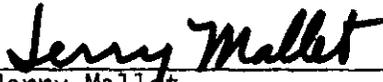
Ronald L. Lindland  
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