Original: Fish Division ✓
cc: Education - Game
Institute for Fisheries Research
E. L. Cooper
Rifle River Area
C. T. Yoder
D. S. Shetter
K. E. Proshek

INSTITUTE FOR FISHERIES RESEARCH
DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

ALBERT S. HAZZARD, PH.D.
DIRECTOR

ADDRESS
UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

November 28, 1951

Report No. 1311

REPORT ON LATE-SEASON TROUT STREAM ANGLING, 1948, 1949 AND 1950

by

David S. Shetter and Karl E. Proshek

Abstract

Intensive creel census data from the experimental waters of Hunt and Fuller creeks (Montmorency County), Pigeon River (Otsego County) and streams of the Rifle River Area (Ogemaw County) for the last 18 days of the 1948, 1949 and 1950 trout seasons were examined in detail to ascertain the effect of extending the trout season to the second Sunday in September, instead of ending the season on Labor Day as in years prior to 1948. For the purpose of this study, the last 18-day period of each of these three seasons was divided into three periods of 6 days each.

The added 6 days after Labor Day (the third or final period) constitute 4.37 percent of the present trout season. The creel census data available indicate that 2.39 percent of the total angling pressure and 2.58 percent of the total catch has been made during the recently-granted extension.

Population estimates for 1949 and 1950 from the blocked-off experimental waters of Hunt Creek, combined with creel census records, indicate that angling during the final 6-day period removed 0.8 percent of the

brook trout legally available to the angler in 1949; in 1950 the estimated percentage of removal during the same period was 2.3.

Statistical examination of the catch per hour data for the three 6-day periods reveals that there was a significantly higher catch per hour in the last 6 days of the season (third period) than during the twelfth to sixth day prior to Labor Day (first period), but the differences in angling quality observed between the first and second and the second and third periods were of no significance.

The coefficient of condition of trout (H) caught in the various periods also was examined by statistical methods. Differences between periods were found to be nonsignificant for the 3-year averages of Pigeon River brook trout, Hunt Creek brook trout, and Rifle River brown trout. Rifle River rainbow trout taken in the third period were found to be in poorer condition than during the second period.

The data available suggest that the extension of the trout season to the second Sunday in September has not produced undue angling pressure in the additional 6 days granted, nor do the trout appear to be appreciably more vulnerable to the angling conducted at that time. Also the condition of the trout taken in the last 6 days is no better and no worse than during other periods immediately preceding. If the data presented here are representative, the majority of the angling will occur, and most of the catch of the last 18 days of the trout season will be made during the second 6-day period which includes the Labor Day holiday. No part of the study reveals any reason for returning to the former season which ended on Labor Day.

Original: Fish Division
cc: Education - Game
Institute for Fisheries Research
E. L. Cooper
Rifle River Area
C. T. Yoder
D. S. Shetter
K. E. Proshek

INSTITUTE FOR FISHERIES RESEARCH
DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

ALBERT S. HAZZARD, PH.D.
DIRECTOR

ADDRESS
UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

November 28, 1951

Report No. 1311

REPORT ON LATE-SEASON TROUT STREAM ANGLING, 1948, 1949 AND 1950

by

David S. Shetter and Karl E. Proshek

Prior to 1948, the regular trout season extended from the last Saturday in April through Labor Day. Starting with the year 1948, the regular trout season was lengthened to include the second Sunday in September. This report is concerned with the effect of the additional 6 days of trout angling afforded by this change in closing date in 1948, 1949 and 1950.

Intensive creel census data from the experimental waters of the Hunt Creek drainage and the streams of the Rifle River Area for the years 1948, 1949 and 1950 and for the Pigeon River Area for 1949 and 1950 were used. The creel census data were divided into three time periods as follows: Period I - the twelfth to sixth day prior to Labor Day; Period II - the 5 days prior to Labor Day plus Labor Day; Period III - the 6 days after Labor Day. This division was used so that a comparison of periods might be made. Comparisons of the periods are made for the individual stream areas for 1948, 1949 and 1950. In addition the data from these areas for these years are combined to emphasize the general results.

The second period, which included Labor Day, was characterized by a much higher angling pressure than that observed in the other two 6-day periods (Table 1 and Figures 1 through 5). There was no marked difference in angling pressure between periods I and III, except during the 1948 season on Hunt and Fuller creeks.

The number of trout caught followed the trend in angling pressure to a large degree with greater numbers of trout caught during period II, except for the Rifle River Area for 1948 and 1949.

Angling quality during the three periods improved slightly, but consistently, from the low of period I.

In general, the trend given in Figure 1 represents the character of angling for the three periods. The third period is similar to the first, but the second period has a higher angling pressure. The catch per hour is reasonably constant.

A comparison of the entire trout season with the final 6 days appears in Table II. The total 1948 trout season was 7 days longer than the seasons of 1949 and 1950. Therefore the final 6 days represent 4.23 percent of the days in the entire season in 1948 and 4.44 percent of the days in the entire season in 1949 and 1950.

Angling pressure during the final period in 1948 at the Hunt Creek Area was 6.80 percent of the total for the season. Since 6.80 percent is 2.57 percent greater than the figure (4.23 percent) given above, this represents a considerable increase over the average season's angling effort. This situation is unique when compared with that of other years and areas. Perhaps it may have been associated with the novelty of the later closing date, although similar angling pressure was not observed on the Rifle River Area. In general the percent of angling pressure was considerably lower

Table 1.--Late season creel census data for Hunt and Fuller creeks, and the streams of the Rifle River Area for 1948 to 1950; and for the Pigeon River Area for 1949 and 1950

Areas / Species	Year	1948			Average or Total	1949			Average or Total	1950			Average or Total	1948 to 1950			Average or Total
	Period [1]	I	II	III		I	II	III		I	II	III		I	II	III	
Hunt and Fuller Brook trout	Number of anglers	25	27	38	90	15	48	11	74	13	53	28	94	53	128	77	258
	Number of trout [2]	23	56	53	132	43	108	50	201	9	93	31	133	75	257	134	466
	Angling pressure	46.75	63.00	95.50	205.25	36.00	128.50	32.00	196.50	27.50	120.25	91.00	238.75	110.25	311.75	218.50	640.50
	Av. catch per hour	0.49	0.89	0.55	0.64	1.19	0.84	1.56	1.02	0.33	0.77	0.34	0.56	0.68	0.82	0.61	0.73
Rifle River Brook Brown Rainbow	Number of anglers	41	83	26	150	35	52	33	120	72	147	46	265	148	282	105	535
	Number of trout	25	7	14	46	11	6	6	23	34	62	17	113	70	75	37	182
	Angling pressure	74.00	151.00	65.50	290.50	63.50	101.50	57.50	222.50	166.50	392.50	113.00	672.00	304.00	645.00	236.00	1185.00
	Av. catch per hour	0.34	0.05	0.21	0.16	0.17	0.06	0.10	0.10	0.20	0.16	0.15	0.17	0.23	0.12	0.16	0.15
Pigeon River Brook Brown Rainbow	Number of anglers	NO DATA				90	148	64	302	73	129	53	255	163	277	117	557
	Number of trout					70	213	85	368	88	130	71	289	158	343	156	657
	Angling pressure					235.00	452.50	215.00	902.50	242.00	382.50	153.00	777.50	477.00	835.00	368.00	1680.00
	Av. catch per hour					0.30	0.47	0.40	0.41	0.36	0.34	0.46	0.37	0.33	0.41	0.42	0.39
All 3 Areas Brook Brown Rainbow	Number of anglers	66	110	64	240	140	248	108	496	158	329	127	614	364	687	299	1350
	Number of trout [2]	48	63	67	178	124	327	141	592	131	285	119	535	303	675	327	1305
	Angling pressure	120.75	214.00	161.00	495.75	334.50	682.50	304.50	1321.50	436.00	895.25	357.00	1688.25	891.25	1791.75	822.50	3505.50
	Av. catch per hour	0.40	0.29	0.42	0.36	0.37	0.48	0.46	0.45	0.30	0.32	0.33	0.32	0.34	0.38	0.40	0.37

[redacted]

[1] Period I is 6 - 12 days prior to Labor Day; Period II is Labor Day and the 5 days prior to it; Period III is the 6 days following Labor Day.

[2] Includes 6- to 7-inch brook trout from Sections C, D and E of Hunt Creek and from Fuller Creek above rotary screen.

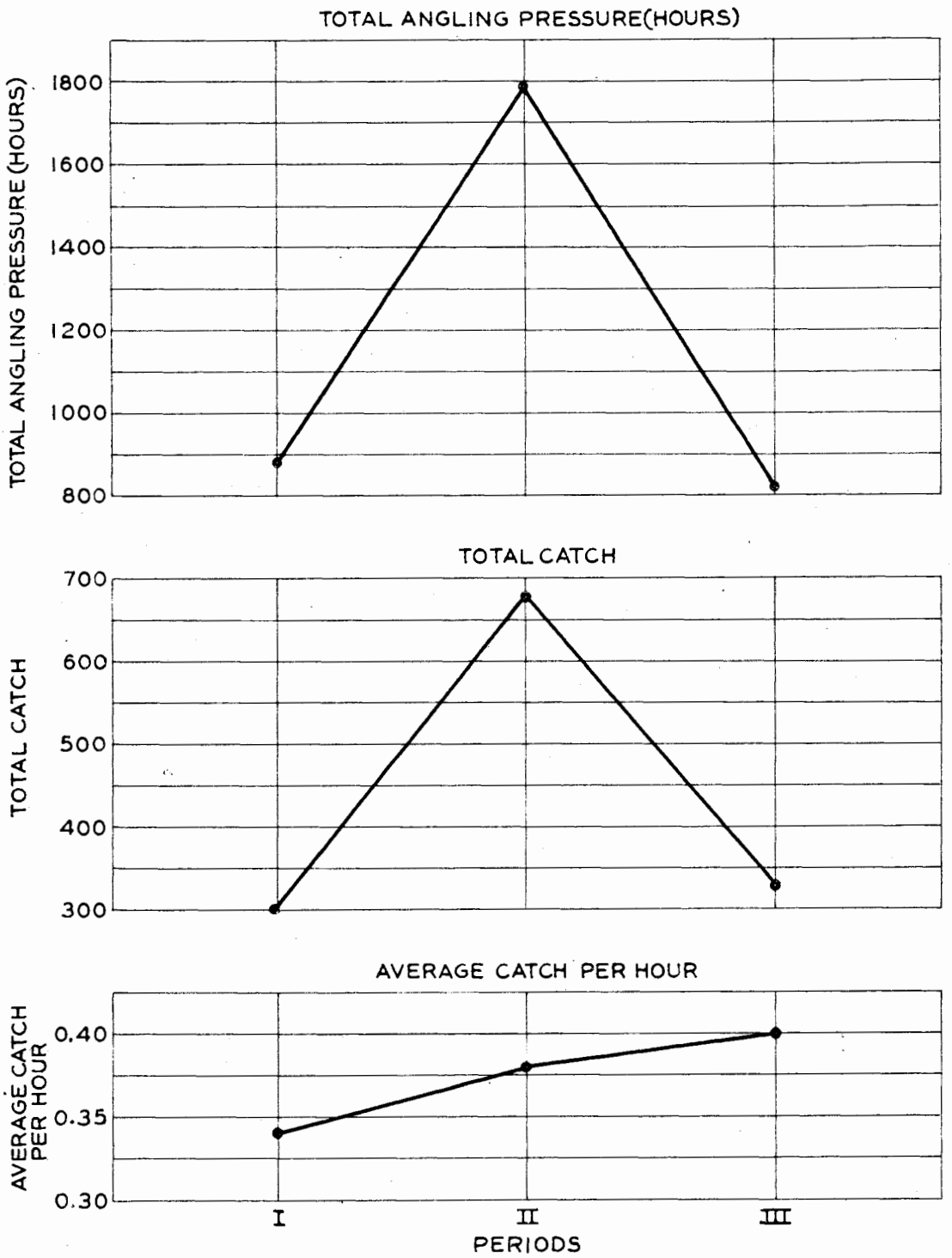

Figure 1. An analysis of angling pressure, catch, and catch per hour according to three 6-day periods at the end of trout season; data combined for Hunt Creek, Fuller Creek, Rifle River Area and Pigeon River, 1948, 1949 and 1950. Data taken from Table 1.

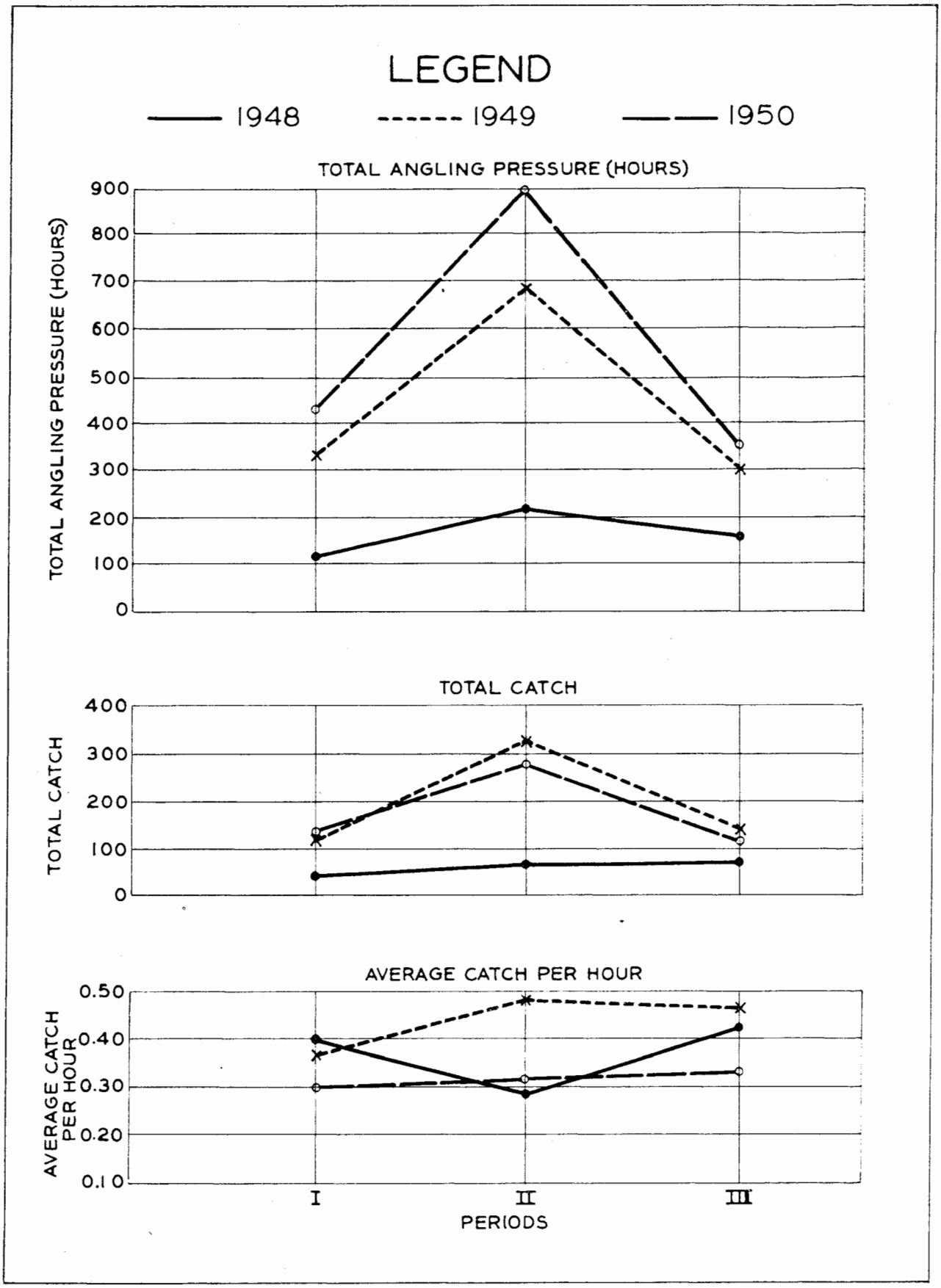

Figure 2. Analysis of angling pressure, catch, and catch per hour according to three 6-day periods at the end of 1948, 1949 and 1950 trout seasons; data combined for Hunt Creek, Fuller Creek, Rifle River Area and Pigeon River. Data taken from Table 1.

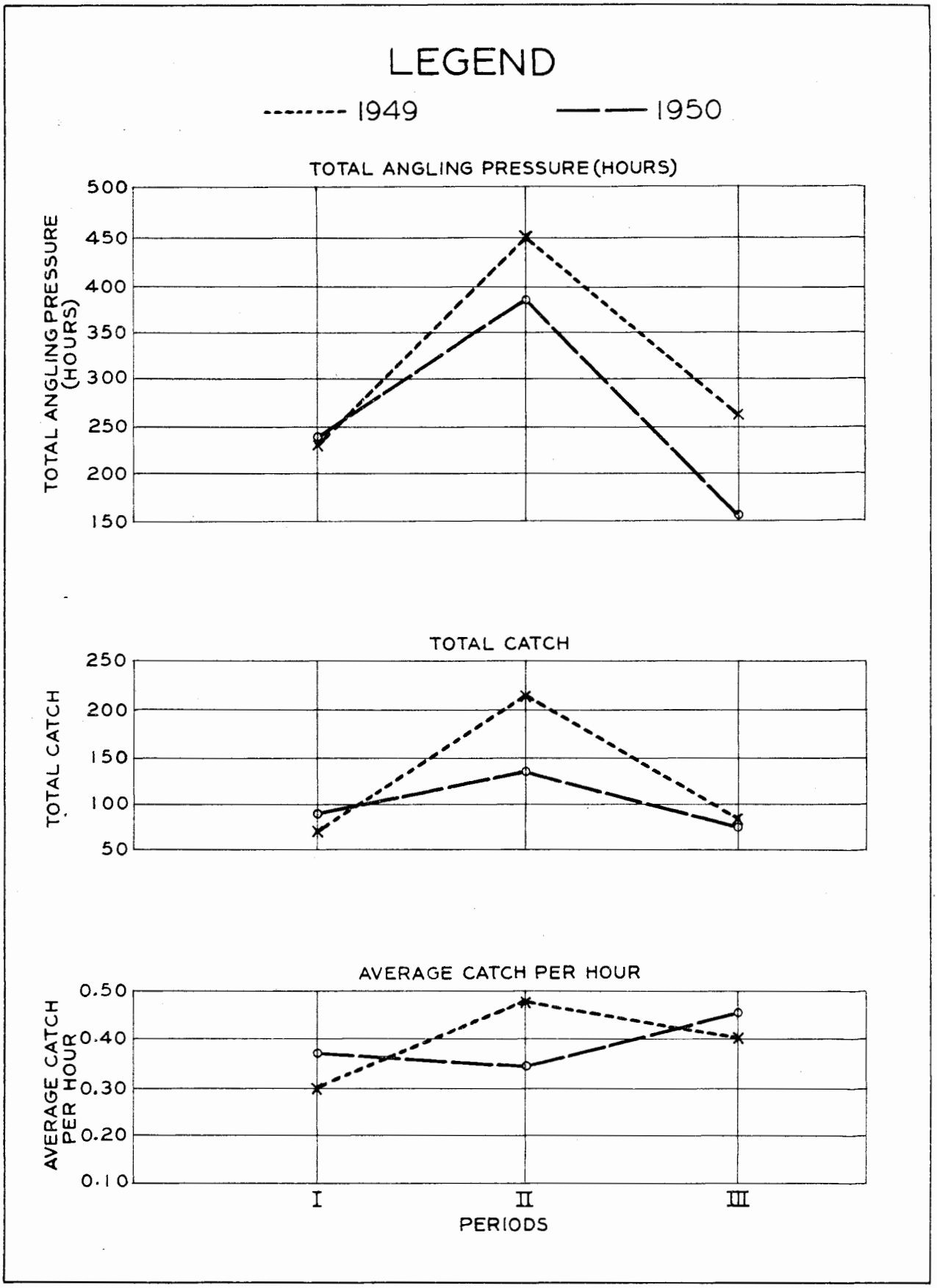

Figure 3. Analysis of angling pressure, catch and catch per hour according to three 6-day periods at the end of the 1949 and 1950 trout seasons on the Pigeon River. Data taken from Table 1.

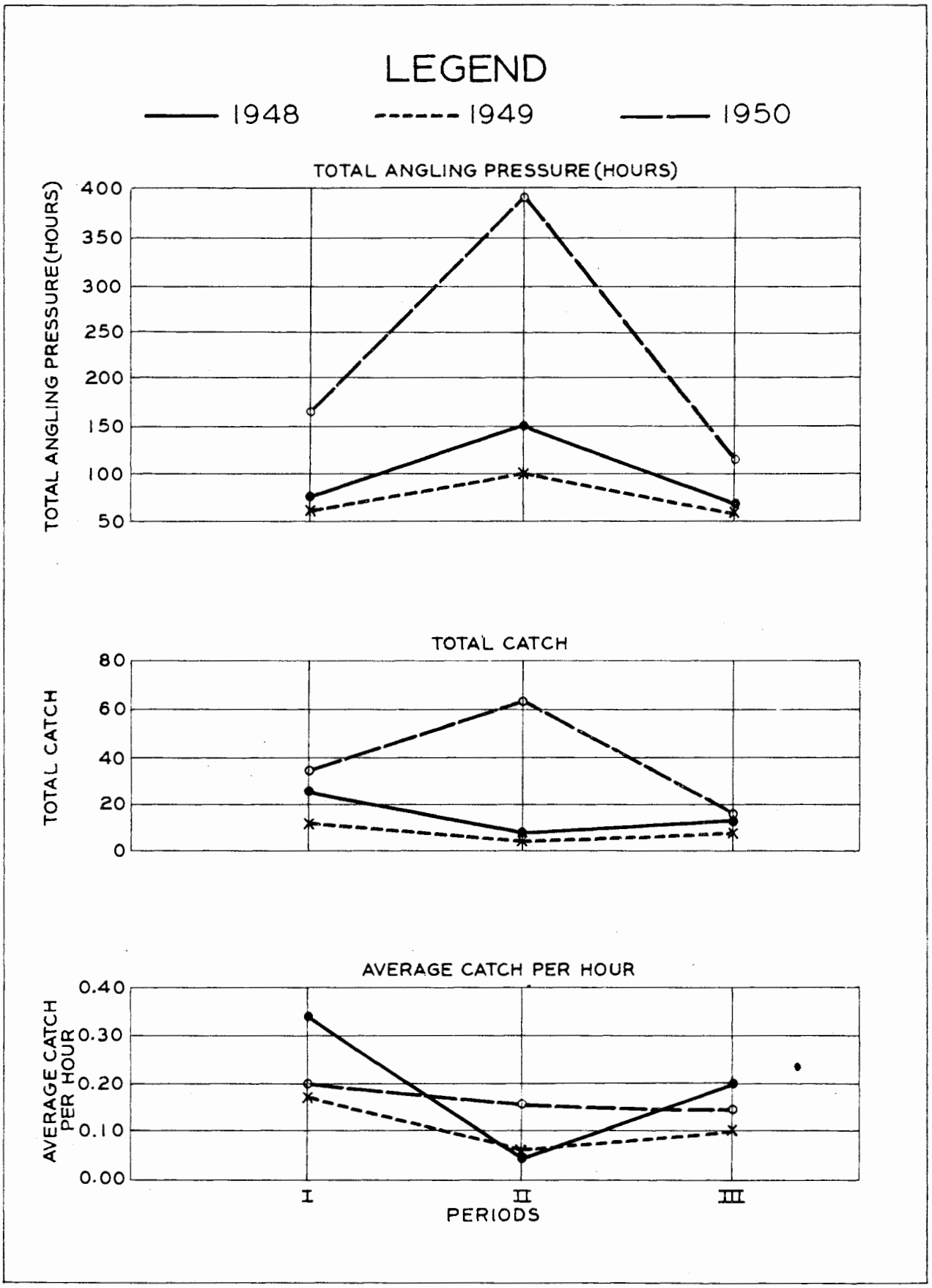

Figure 4. Analysis of angling pressure, catch and catch per hour according to three 6-day periods at the end of the 1948, 1949 and 1950 trout seasons on the Rifle River Area. Data taken from Table 1.

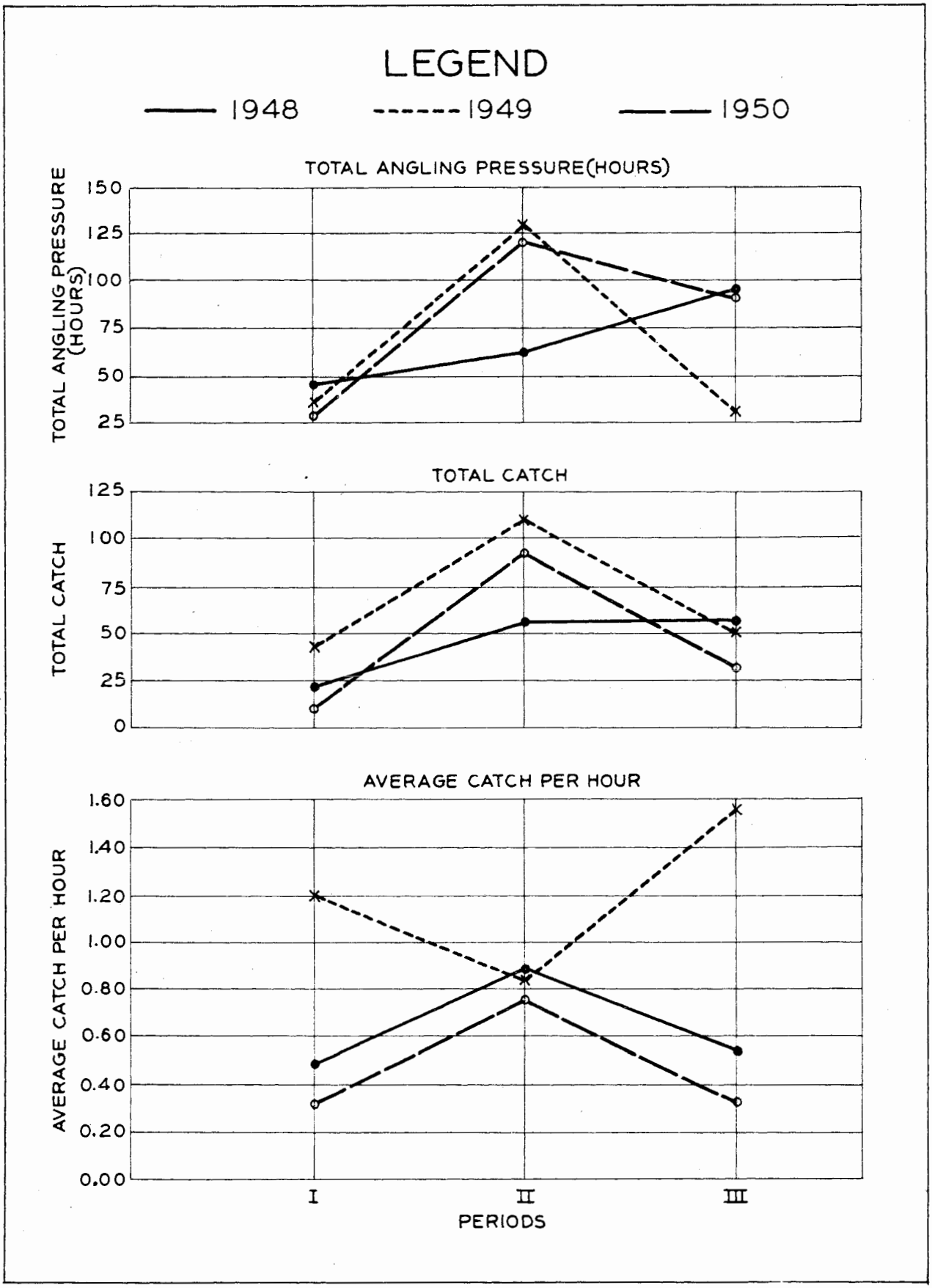

Figure 5. Analysis of angling pressure, catch and catch per hour according to three 6-day periods at the end of the 1948, 1949 and 1950 trout seasons on Hunt Creek and Fuller Creek. Data taken from Table 1.

in the final period than the portion of the season that this period represents.

The percent of catch compares well with the percent of season for the Hunt Creek Area. In contrast the Rifle River Area and the Pigeon River Area both show a much poorer catch in the final period than the season average.

The average catch per hour data are given to show the fluctuations and their effects upon the percentage of catch with the varying pressures. Although the catch per hour during the final period is slightly higher than the season average the subnormal pressure in period III results in a percent of catch well below the 4.23 to 4.44 range in percent of season. Therefore the 6-day extension produced a catch that was less than the season average.

Since the spring of 1949, about two miles of Hunt Creek (sections Z, A, B and C) have been enclosed between barrier weirs. These structures make it possible to trap and record all fish migrating into or out of the enclosed waters. Immediately following the general trout season during 1949 and 1950, estimates of the trout population were made in the enclosed waters. The number of individual trout that were available to the angler during the season may be estimated by obtaining the sum of: the post-season population of legal and special[1] trout; the anglers' total season catch; the catchable[2] trout that moved out of the enclosed waters through the weirs; and the observed mortality. This estimate is undoubtedly low,

---

[1] Special trout are 6.0 - 6.9 inches long. They were legal in the enclosed waters of Section C only. The estimated population of special trout in Section C is included in the estimated trout available to the angler. The estimated population in the closed waters of Section C is not included.

[2] Legal trout going downstream at the lower weirs, and legal and special trout moving upstream through the upper weirs.

as unobserved mortality and predation are not considered.

In 1949 the enclosed waters had an estimated 721 trout available (218 estimated fall population plus 488 total catch during season plus 9 migrants plus 6 observed mortalities). The 6 trout caught during the final period in the enclosed waters represent 0.8 percent of the estimated trout available during the season. For the entire season anglers caught 67.7 percent of trout estimated to be available.

In 1950 the enclosed waters presumably had 695 legal trout available (258 estimated fall population plus 411 total catch during the season plus 19 migrants plus 7 observed mortalities). The 16 trout caught during the final period in the enclosed waters represent 2.3 percent of the estimated trout available during the season. For the entire season anglers caught 59.1 percent of the estimated total.

A statistical treatment of the catch per hour data for the three periods has been made (Tables 3 and 4). The formulas used in the statistical analyses of this study were as follows (from Snedecor, 1948):

Mean $= \Sigma x/n$;

Standard deviation $= \sqrt{\dfrac{\Sigma x^2 - \dfrac{(\Sigma x)^2}{n}}{n-1}}$;

Standard error of mean $= \dfrac{\text{Standard deviation}}{\sqrt{n}}$;

Standard error of the difference between two means $= \sqrt{(SE_1)^2 + (SE_1)^2}$;

"t" $= \dfrac{\text{Difference between means}}{\text{Standard error of difference}}$

The "t" values were then referred to a table of percentages which lists the percentage chances that the means are different for numerous

Table 2.--A comparison of total trout season with the final 6-day period

		Total Season				Final 6 Days (Period III)			
Areas	Year	Days in season	Total angling pressure	Total catch	Average catch per hour	Percent of season	Percent of pressure	Percent of catch	Average catch per hour
Hunt and Fuller creeks	1948	142	1404.25	1065	0.76	4.23	6.80	4.98	0.55
	1949	135	1733.00	1233	0.71	4.44	1.85	4.06	1.56
	1950	135	2002.25	1168	0.58	4.44	4.54	2.65	0.34
	1948-50	412	5139.50	3466	0.67	4.37	4.25	4.36	0.61
Rifle River Area	1948	142	5081.00	1084	0.21	4.23	1.29	1.29	0.21
	1949	135	4194.50	874	0.21	4.44	1.37	0.69	0.10
	1950	135	6917.00	1047	0.15	4.44	1.63	1.62	0.15
	1948-50	412	16192.50	3005	0.19	4.37	1.46	1.23	0.16
Pigeon River Area	1949	135	6817.00	2717	0.40	4.44	3.15	3.13	0.40
	1950	135	6195.00	3493	0.56	4.44	2.47	2.03	0.46
	1949-50	270	13012.00	6210	0.48	4.44	2.83	2.51	0.42
All 3 Areas	1948	142	6485.25	2149	0.33	4.23	2.48	3.12	0.42
	1949	135	12744.50	4824	0.38	4.44	2.39	2.92	0.46
	1950	135	15114.25	5708	0.38	4.44	2.36	2.08	0.33
	1948-50	412	34344.00	12681	0.37	4.37	2.39	2.58	0.40

Table 3.--Catch per hour statistics for Hunt and Fuller creeks and the streams of the Rifle and Pigeon River areas, by the three arbitrary periods

Areas / Species	Year	1948			1949			1950			1948 to 1950		
	Period	I	II	III	I	II	III	I	II	III	I	II	III
Hunt and Fuller Brook trout	Mean catch per hour	0.376	0.738	0.468	1.101	0.814	1.212	0.244	0.706	0.414	0.549	0.753	0.555
	Standard deviation	0.926	1.120	0.634	1.251	0.996	1.260	0.742	1.152	0.562	1.016	1.082	0.768
	Standard error/mean	0.185	0.216	0.103	0.323	0.144	0.378	0.202	0.158	0.106	0.140	0.096	0.088
Rifle River Brook Brown Rainbow	Mean catch per hour	0.239	0.068	0.308	0.091	0.079	0.142	0.162	0.157	0.155	0.167	0.115	0.188
	Standard deviation	0.801	0.290	0.547	0.237	0.323	0.406	0.440	0.381	0.541	0.536	0.346	0.504
	Standard error/mean	0.125	0.032	0.107	0.041	0.046	0.071	0.052	0.033	0.080	0.044	0.021	0.049
Pigeon River Brook Brown Rainbow	Mean catch per hour	NO DATA			0.299	0.438	0.470	0.351	0.335	0.485	0.322	0.390	0.477
	Standard deviation				0.567	0.551	0.594	0.440	0.560	0.761	0.513	0.558	0.672
	Standard error/mean				0.060	0.045	0.074	0.520	0.049	0.105	0.040	0.034	0.062
All 3 Areas Brook Brown Rainbow	Mean catch per hour	0.291	0.234	0.403	0.336	0.438	0.445	0.256	0.320	0.350	0.293	0.349	0.400
	Standard deviation	0.846	0.670	0.601	0.668	0.669	0.704	0.476	0.665	0.658	0.632	0.670	0.662
	Standard error/mean	0.104	0.064	0.075	0.057	0.043	0.068	0.038	0.037	0.058	0.033	0.026	0.038

Table 4.--A statistical comparison of the catch per hour statistics given in Table 3

Areas / Species	Year / Period	1948 I-II	1948 I-III	1948 II-III	1949 I-II	1949 I-III	1949 II-III	1950 I-II	1950 I-III	1950 II-III	1948 to 1950 I-II	1948 to 1950 I-III	1948 to 1950 II-III
Hunt and Fuller Brook trout	Difference of means	0.362	0.092	0.270	0.287	0.111	0.398	0.462	0.170	0.292	0.204	0.006	0.198
	Standard error difference	0.284	0.212	0.239	0.354	0.497	0.404	0.264	0.228	0.190	0.170	0.165	0.130
	"t" value	1.27	0.43	1.13	0.81	0.22	0.99	1.75	0.75	1.54	1.20	0.04	1.52
	Percentage [1]	80	33	74	60	16	68	92	55	88	77	3	87
Rifle River Brook Brown Rainbow	Difference of means	0.171	0.069	0.240	0.012	0.051	0.063	0.005	0.007	0.002	0.052	0.021	0.073
	Standard error difference	0.129	0.165	0.112	0.062	0.082	0.085	0.062	0.095	0.087	0.049	0.066	0.053
	"t" value	1.33	0.42	2.14	0.19	0.62	0.74	0.08	0.07	0.02	1.06	0.32	1.38
	Percentage [1]	82	32	97	14	46	54	7	6	2	71	24	83
Pigeon River Brook Brown Rainbow	Difference of means	N O D A T A			0.139	0.171	0.032	0.016	0.134	0.150	0.078	0.155	0.087
	Standard error difference				0.075	0.095	0.087	0.071	0.117	0.116	0.052	0.074	0.071
	"t" value				1.85	1.80	0.37	0.23	1.15	1.29	1.50	2.09	1.23
	Percentage [1]				94	93	29	18	75	80	87	96	78
All 3 Areas Brook Brown Rainbow	Difference of means	0.057	0.112	0.169	0.102	0.109	0.007	0.064	0.094	0.030	0.056	0.107	0.051
	Standard error difference	0.122	0.128	0.099	0.071	0.089	0.080	0.053	0.069	0.069	0.042	0.050	0.046
	"t" value	0.47	0.88	1.71	1.44	1.22	0.09	1.21	1.36	0.43	1.33	2.14	1.09
	Percentage [1]	36	62	91	85	78	7	77	83	34	82	97	72

[1] Percentage chance that the means are different

values of "t." This table was furnished us by Dr. E. L. Cooper.

Also it should be pointed out here that the average catch per hour as calculated in Table 1 will differ from that calculated from the same data in Table 3 because of the method of calculation that must be used to obtain standard deviation and standard error for the statistical analyses.

The percentage chance that trout are more vulnerable to angling during any one period than during another period is given in Table 4. When the "t" values determined yield percentages higher than 95 percent, the differences between the average catches per hour are said by statistians to be significant. There are 19 chances in 20 that the differences in the averages noted are real and not the result of chance.

Using the above facts as criteria, it was determined that there were no significant differences in catch per hour averages for Hunt and Fuller creeks for any year or the combination of years between any of the periods under study (range 3 - 92 percent).

On the Rifle River Area streams, the only significant difference noted was between the second and third periods in 1948. The 1949, 1950 and combined data resulted in average catches per hour for the various periods whose differences were nonsignificant (range 2 - 83 percent).

In 1949, on the experimental portion of the Pigeon River, near significance is to be noted for the differences between the following: the first and second; and the first and third periods. There was no significance between the results of the second and third periods. In 1950 there was no significance to the differences between any of the periods. By combination of the Pigeon River data for 1949 and 1950, it

can be demonstrated that the average catch per hour is significantly higher during the third period than during the first period. The other comparisons were nonsignificant.

Inspection of the data for all streams when combined by years also indicates no significance in comparisons between any two periods. For all streams and all years combined, the third period has a significantly higher catch per hour than the first period. These data indicate that there are 97 chances in 100. There is a difference in angling quality between periods I and III. However as Table 1 and 2 indicate, the difference is slight. The differences in angling quality noted in the other two comparisons are nonsignificant.

The change in coefficient of condition "H" [3] for the three periods was examined using the formula, $"H" = \frac{100{,}000 \times \text{weight in grams}}{(\text{total length in mm.})^3}$. The statistics for the "H" values obtained are given in Tables 5 and 6.

The difference in the condition of rainbow trout taken during periods II and III at the Rifle River Area 1948 to 1950 was highly significant. The "t" value was 4.27. Examination of data for Hunt and Fuller creeks for 1950 indicated that period II differed significantly from periods I and III. When period I and II were compared we had a "t" value of 2.69.

---

[3] The factor "H" is similar to the commonly used "K" to be noted elsewhere in the literature. However, "H" is used here since we have used total length in millimeters rather than standard length, as defined by the original formula for "K." As a result the values we obtain run somewhat lower than comparable computations based on standard lengths.

Table 5.--Data on coefficient of condition (H) for trout caught in the various arbitrary periods of 1948, 1949 and 1950

Areas	Species	Year	Period	Number of trout [1]	Mean H	Standard deviation	Standard error of the Mean
Hunt and Fuller	Brook	1948	I	24	1.037	0.092	0.019
			II	38	1.025	0.083	0.013
			III	44	1.025	0.104	0.016
		1949	I	43	0.964	0.088	0.013
			II	61	0.971	0.102	0.013
			III	16	0.947	0.064	0.016
		1950	I	9	0.932	0.093	0.031
			II	90	1.018	0.087	0.009
			III	28	0.976	0.094	0.018
		1948-50	I	76	0.983	0.096	0.011
			II	189	1.005	0.094	0.007
			III	88	0.996	0.099	0.011
Pigeon River	Brook	1949-50	I	21	0.932	0.067	0.015
			II	73	0.951	0.093	0.011
			III	35	0.945	0.062	0.010
Rifle River	Rainbow	1948-50	I	14	0.991	0.157	0.042
			II	36	1.015	0.086	0.014
			III	10	0.921	0.054	0.017
Rifle River	Brown	1948-50	I	20	0.966	0.062	0.013
			II	28	0.932	0.073	0.014
			III	22	0.936	0.065	0.014

[1] The number of specimens available for computations on coefficient of condition will not agree with the numbers of fish listed in Table I, as a portion of the catch was dressed or dehydrated prior to the census operation. These trout were not included in the "F" factor calculations.

Table 6.— Data from "H" factor statistics compared for the various arbitrary time periods 1948, 1949 and 1950

Areas	Species	Year	Periods compared	Difference of Means	Standard error of the difference	"t" value	Percentage [1]
Hunt and Fuller	Brook	1948	I and II	0.012	0.023	0.52	39
			I and III	0.012	0.024	0.52	38
			II and III	0.000	0.020	0.00	0
		1949	I and II	0.007	0.018	0.39	30
			I and III	0.017	0.021	0.81	58
			II and III	0.024	0.021	1.14	75
		1950	I and II	0.086	0.032	2.69	99
			I and III	0.044	0.036	1.22	78
			II and III	0.042	0.020	2.10	96
		1948-50	I and II	0.022	0.013	1.69	81
			I and III	0.013	0.016	0.81	58
			II and III	0.009	0.013	0.69	51
Pigeon River	Brook	1949-50	I and II	0.019	0.019	1.00	68
			I and III	0.013	0.018	0.72	53
			II and III	0.006	0.015	0.40	31
Rifle River	Rainbow	1948-50	I and II	0.024	0.044	0.55	42
			I and III	0.070	0.045	1.56	88
			II and III	0.094	0.022	4.27	100
	Brown	1948-50	I and II	0.034	0.019	1.79	93
			I and III	0.030	0.019	1.58	89
			II and III	0.004	0.020	0.20	16

[1] Percentage chance that the means are different.

When II and III were compared we had a "t" value of 2.10. The conclusion that there is a change in condition in the instances given above, should be viewed with suspicion for the following reasons: the number of trout these comparisons are based upon are few; in each case many more trout records were available for computing period II than for the other periods; and trout handled by the census clerk are in various stages of dehydration, which affects the reliability of the recorded weights.

Differences between average coefficients of condition of Rifle River brown trout in the three periods were determined to be nonsignificant. The same was true for the brook trout of the experimental waters of the Pigeon River. These data too may be open to the same criticisms given above. The combined data of Hunt Creek and Fuller Creek for 1948 to 1950 were determined to be nonsignificant. These data should be fairly reliable as they were based upon many more trout.

While the coefficient of condition for brook trout doesn't appear to change appreciably during the third period, physiological changes might take place which have no relation to the length-weight ratio. An evaluation of such things as palatability, thicker skin or excessive slime and other physiological changes that are independent from "H" values, but which affect the appearance and desirability of trout, would be of interest.

From the analysis of these data, it appears that the 6-day extension has not increased the season's catch very greatly or resulted in any unusual angling pressure. The extension also provides for some additional angling on trout lakes which in general offer better fishing during the cooler periods.

The data examined involved relatively few rainbow trout, due to the character of the streams censused. However, trout anglers who like fall

fishing should be reminded that this species of trout is likely to attain its best fighting condition in the fall of the year, and there are numerous waters where rainbow trout may be taken during September, October and November from portions of designated streams, and some lakes. These designated waters have a predominantly rainbow trout population. Brook and brown trout waters which contain rainbow trout are, in general, legally angled over only during the regular season. In these nondesignated waters which contain some rainbow trout, the 6-day extension of the general season should lead to a better utilization of the rainbow trout population.

One type of creel census data which we lack is a good record of the intensity of angling on rainbow trout streams such as the East Branch of the Au Gres, Sturgeon River, Platte River and others during the special fall season.

This report fails to reveal any valid reasons for returning to the Labor Day closing date.

It appears that the later closing date may be continued in that it doesn't appear to have damaged the brook and brown trout populations examined. At present, the extension doesn't appear to interfere with the fall spawning activities of brook and brown trout in the streams discussed here.

It is possible that during some seasons or in some waters (such as Upper Peninsula brook trout streams) earlier fall spawning may occur, and the final 6-day period might find trout more vulnerable to angling, or less desirable as creel specimens.

INSTITUTE FOR FISHERIES RESEARCH

David S. Shetter and Karl E. Proshek

Report Approved by A. S. Hazzard

Report Typed by J. M. Mial