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FOURTH PROGRESS REPORT ON A TROUT MANAGEMENT STUDY OF THE PINE RIVER, LAKE COUNTY[1]

By Edward E. Schultz[2]

A ten-inch minimum size limit on trout has been in effect on a 5.8-mile section of the Pine River, Lake County, for four years. Each year the trout in the river have been studied from samples taken with a direct-current electric shocker. Locality and other data for the 1955 samples are shown in Table 1. The records for the previous years are contained in Institute for Fisheries Research Reports No. 1355, 1393 and 1468. The locations of the six collecting stations have remained the same for the four years of study. However, because of a lack of time, each station was shocked only once in 1955. Other years each station was shocked twice at different times. All other field and laboratory techniques have remained the same as in previous years.

Table 2 gives the catch-per-hour with the shocker compared to the catches of the three years preceding 1955. Comparison is also made

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[1] The field work, analysis of data, and preparation of the report were undertaken with Federal Aid to Fish Restoration funds under Dingell-Johnson Project No. F-2-R.

[2] Assistants in the field were Fisheries Technicians Donald C. McNaught and Eugene B. Welch. The author was the field party leader.

Table 1

Locations, dates, measurements and numbers of trout captured at each station in the Pine River, 1955

(Location of the experiment is T. 20 N., R. 12 W., Lake County)

Sample area	Station number	Location Section	Month and day, 1955	Length shocked, feet	Time shocked, minutes	Number of trout captured		
						Brook trout	Brown trout	Rainbow trout
Control	136	24	Aug. 29	1,320	49	4	28	3
"	135	"	" 29	1,585	58	1	39	3
"	137	13	" 30	1,915	67	14	44	3
Total				4,820	174	19	111	9
Experiment	138	12	Aug. 30	1,060	33	5	14	1
"	140	2	" 31	1,320	56	23	25	5
"	139	3	" 31	1,650	55	8	24	14
Total				4,030	144	36	63	20

Table 2

Catch-per-hour, by D. C. shocker, of trout from the two study sections (control and experimental) of the Pine River, 1952 through 1955

Species and year	Size group (inches)							
	0.0 - 6.9		7.0 - 9.9		10.0 and over		All sizes	
	Control	Exp.	Control	Exp.	Control	Exp.	Control	Exp.
Brook trout								
1952	0.8	6.2	1.0	1.7	0.0	0.2	1.8	8.1
1953	4.7	16.4	0.3	2.1	0.2	0.4	5.2	18.9
1954	1.7	11.5	1.9	1.5	0.0	0.4	3.6	13.4
1955	5.2	12.5	1.0	1.2	0.3	1.2	6.6	15.0
Brown trout								
1952	3.7	2.3	2.4	1.1	2.6	0.4	8.7	3.8
1953	9.6	14.3	1.0	0.4	1.3	1.7	11.9	16.4
1954	23.4	10.2	3.4	5.8	2.1	1.7	28.9	17.7
1955	29.0	13.7	6.6	4.6	2.8	7.9	38.3	26.2
Rainbow trout								
1952	18.9	7.9	2.8	1.1	0.0	0.0	21.7	8.9
1953	3.4	5.0	4.2	2.3	0.3	0.0	8.0	7.4
1954	2.2	1.5	1.7	2.1	0.3	0.2	4.3	3.8
1955	1.4	7.9	1.7	0.0	0.0	0.4	3.1	8.3
Total trout								
1952	23.4	14.9	6.1	3.8	2.6	0.6	32.1	20.9
1953	17.7	35.7	5.5	4.8	1.8	2.1	25.0	42.6
1954	27.4	23.2	7.0	9.4	2.4	2.3	36.8	34.9
1955	35.6	34.2	9.3	5.8	3.1	9.6	47.9	49.6

between the part of the river where the ten-inch limit is in effect and the control section where a seven-inch limit has continued. Results in 1955 were similar to those of 1954 except for a slight increase in the number of young-of-the-year rainbow trout. Apparently the ten-inch minimum size limit is having little or no effect on making more trout of large size available or on the production of trout.

The average growth rates of the brook, brown and rainbow trout in the Pine River have remained about the same for the four years of the study. The slight variations (Table 3) are too small and inconsistent to indicate a trend.

Literature Cited

Schultz, Edward E.

1953a. Progress report on a trout management study of the Pine River, Lake County, Michigan. Institute for Fisheries Research Report No. 1355, 11 pages (unpublished).

1953b. Second progress report on a trout management study of the Pine River, Lake County, Michigan. Institute for Fisheries Research Report No. 1393, 7 pages (unpublished).

1956. Third progress report on a trout management study of the Pine River, Lake County. Institute for Fisheries Research Report No. 1468, 6 pages (unpublished).

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Table 3

Comparison of age-length relationships of trout in the two experimental sections of the Pine River for 1952 through 1955

(Number of fish in parentheses.)

Species and year	Age group 0		I		II		III		IV		V	
	Control	Exp.	Control	Exp.	Control	Exp.	Control	Exp.	Control	Exp.	Control	Exp.
Brook trout												
1952	...	3.8	7.2	6.7	...	11.2	...	...	...	...	...	...
	...	(12)	(9)	(25)	...	(1)	...	...	...	...	...	...
1953	3.9	3.7	6.9	7.3	...	...	...	...	...	...	...	...
	(22)	(60)	(10)	(30)	...	...	...	...	...	...	...	...
1954	4.1	3.1	7.5	6.5	8.0	9.3	...	...	...	...	...	...
	(8)	(48)	(12)	(17)	(1)	(5)	...	...	...	...	...	...
1955	4.2	3.7	7.3	6.2	11.6	10.3	...	...	...	...	...	...
	(14)	(25)	(4)	(6)	(1)	(5)	...	...	...	...	...	...
Brown trout												
1952	4.1	3.6	8.4	8.4	12.2	10.3	15.9	15.8	19.3	...	22.5	...
	(18)	(10)	(12)	(6)	(6)	(1)	(3)	(1)	(3)	...	(2)	...
1953	4.1	4.3	8.9	9.2	13.2	13.3	15.5	15.8	...	...	...	...
	(59)	(67)	(8)	(6)	(5)	(4)	(1)	(1)	...	...	...	...
1954	3.7	3.8	7.9	8.1	11.7	11.6	15.3	13.7	...	23.4	...	20.5
	(131)	(48)	(25)	(35)	(9)	(8)	(4)	(1)	...	(1)	...	(1)
1955	4.2	4.2	9.0	9.0	10.1	11.2	14.7	13.8	...	18.1	...	20.1
	(84)	(33)	(14)	(9)	(10)	(12)	(3)	(6)	...	(2)	...	(1)
Rainbow trout												
1952	3.5	3.5	8.0	8.8	9.3	...	...	...	...	...	...	...
	(94)	(37)	(15)	(5)	(1)	...	...	...	...	...	...	...
1953	4.2	3.5	8.2	8.4	...	...	...	...	...	...	...	...
	(16)	(23)	(33)	(13)	...	...	...	...	...	...	...	...
1954	3.7	3.7	7.4	7.8	10.7	9.9	...	...	...	...	...	...
	(10)	(5)	(11)	(12)	(3)	(3)	...	...	...	...	...	...
1955	3.4	3.0	8.7	10.5	...	...	...	...	...	...	...	...
	(4)	(19)	(5)	(1)	...	...	...	...	...	...	...	...