STATE Texas

PROJECT NO. F-3-R-1, Job B-2

PERIOD March 3, 1954 - March 2, 1955

Job Completion Report

by

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TITLE

Creel Census of Caddo Lake.

OBJECTIVES

To estimate the total catch by species and to obtain data regarding the growth rate and relative abundance of each species in the catch.

METHODS

Caddo Lake lies approximately one-half in Louisiana and one-half in Texas. A large portion of the Texas half of the Lake is covered by heavy cypress growth cut by winding boat roads, bayous and small pockets of open water. The original plan outlined for the job was to contact boats over the entire Texas half of the Lake to determine the ratio of fishermen using private boats to those using boats rented at public fishing camps. It was found that the heavy cypress growth curtails visibility to the point where this plan was impracticable.

Instead of the original plan a system of road blocks was established to determine the total number of fishermen using the lake on each census day. Three census stations were established at public camps where fishermen were contacted and catches examined at the end of their fishing day. Data collected from these fishermen include number and length of fish by species, types of bait used, and the types of fishing employed, i. e., trolling, still fishing, casting, etc. Road blocks and census stations were operated simultaneously every fifth day. The data collected from fishermen at the three public camps on each census day was expanded by ratio and proportion to the total number of fishermen on the lake on that day as shown by the road blocks. These figures, representing the 73 census days during the period, were again expanded by ratio and proportion to represent the 365 day period of the census.

There are five access roads leading to that portion of Caddo Lake lying in Texas. In order to economize on personnel, all of the road blocks were not operated on any one census day. The road blocks were operated by groups so that each one was in operation once every three census days. For example, road blocks A and B were operated on the first census day, C on the second census day, D and E on the third and then A and B again on the fourth. (See attached map for locations of road blocks and census stations). Road block figures were averaged by day of the week to obtain a figure that could be used for each day of the week. This was done because it was found that fishing pressure varies markedly on different days of the week. For example, the figures for the Wednesdays on which road block A was operated were averaged and that figure was used to fill in all of

the days on which road block A was not operated.

EXPLANATION OF TABLES

Table 1 records the numbers and weights of 16 species caught during the period and a summation of the weights and numbers of those species. This summation represents the total harvest by sport fishermen during the period. The number of each species caught during the period was obtained by expanding the ratio sampled at the fishing camps to the total number of fishermen fishing on the lake on each census day as shown by the road blocks. This figure, which represents the 73 census days of the period, was then expanded by ratio and proportion to represent the number caught during the 365 day period of the census. For example:

$$\frac{\text{No. black bass taken by fishermen contacted on March 3} \times \text{Total No. fishing in lake on March 3}}{\text{No. fishermen contacted at public camps on March 3}} = \text{Total No. of black bass caught on March 3}$$

Then to expand this:

$$\frac{\text{Total No. black bass caught on census days} \times \text{365 days (days of census period)}}{\text{73 (census days)}} = \text{Total No. black bass caught during period}$$

Or to express this in one formula:

$$\text{Sum} \left(\frac{\text{No. black bass counted on each census day} \times \text{Total No. fishermen on lake each census day}}{\text{No. fishermen contacted at camps on each census day}} \right) \times \frac{\text{365 days of period}}{\text{73 (census days)}} = \text{Total no. black bass caught during period}$$

This calculation was repeated for each species. The species numbers were then summed to obtain the total harvest figure.

The average lengths of the species were weighed to remove errors due to variation in size of fish throughout the period.

For example:

$$\text{Sum} \left(\frac{\text{Average length of black bass on each census day} \times \text{No. bass caught on each census day}}{\text{Total number of black bass caught on census days}} \right) = \text{Average length of black bass during 365 day period}$$

The average length of each species was applied to length-weight curves constructed from data on Caddo Lake fish collected during the period. The average weights obtained in this manner were multiplied by the total number of each species to get the total weights of each species. A summation of the species weights gave a total weight of fish harvested.

Table 2 shows the relative abundance of the 16 species treated in this census. Largemouth black bass were the most abundant with a total of 96,370 being caught making up 27.18 percent of the total number and 42.53 percent of the total weight. This may be explained by the fact that while fishing for most of the other species is seasonal many local fishermen fish for largemouth bass throughout the year.

Table 3 records the fish per man-hour for each species. Only those catches which contained one species were used in this calculation. In catches of more than one species, it is impossible to accurately determine the time spent in catching each species. There were so few pure catches of sunfish (bluegill, redear, warmouth, etc.) that these were grouped together and calculated as sunfish per man-hour of fishing. No pure catches of channel catfish were examined.

Table 4 shows the fishing success for each method of fishing. Only those catches were one method of fishing was employed were used in this calculation. This procedure was necessary because it was impossible to obtain an accurate estimate of how long each method was employed when more than one method was used.

Table 5 records the fish per man-hour of fishing for each type of bait used. Only those catches where one method of fishing was employed were used in this calculation.

Tables 6 through 13 show the periods of best fishing for each species, based upon actual creel checks. The number of fishermen actually contacted was divided into the number of each species that was caught. This was calculated by month and plotted on graphs to show the average number of each species per creel. These graphs are intended to merely show the trend in fishing success each month, or periods when they were "biting" best.

SUMMARY

Due to heavy cypress growth on Caddo Lake, the original plan of contacting fishing boats over the entire lake was abandoned. Instead, a system of road blocks and census stations was established and calculations made by ratios. Road blocks and census stations were operated every fifth day which amounted to 73 census days for the period. Breaking this down to days of the week, creel census fell on Sundays, Tuesdays, Thursdays and Fridays ten times and on Mondays, Wednesdays and Saturdays eleven times.

During this period, a calculated 70,575 fishermen fished in Caddo Lake. These fishermen caught a total of 354,503 fish weighing a total of 124,638 pounds. Each fisherman caught an average of 5.02 fish per fishing day and an average of 1.76 pounds of fish per fishing day.

Road block figures show that 14,115 fishermen visited the lake on the 73 census days. Census stations on the lake counted and measured the catches of 3,294 of 23 percent of those fishermen. The 3,294 fishermen contacted fished a total of 17,320 hours and caught 23,376 fish which is 1.34 fish per man-hour of fishing.

Largemouth bass were taken in the greatest numbers, a total of 96,370 being taken during the period. These bass had an average weight of .55 pounds and a total weight of 53,003 pounds. The next three species in order of abundance were bluegill sunfish, 79,555, redear sunfish, 66,566 and warmouth sunfish, 33,873.

When fishermen were contacted at public camps, their fish were measured to the nearest inch. This was done in order to expedite measurement and to minimize delay to the fishermen. This measurement was accurate enough for all purposes except age group determination. It was found upon examination of the data that one inch measurements would not show age groups clearly enough to be valid.

The road on which road block A is located was undergoing repairs from the first part of November to the latter part of January 1955, and was impassble in bad weather during that period. Even in good weather fishermen would forgo trips to the lake for fear they would be caught by the rain and would be unable to get out. The fact that this road leads to several popular public fishing camps on the lake no doubt caused the fishing pressure figures to be lower than normal.

Table 1. Weights and Numbers of Fish Caught in Caddo Lake, Harrison County, Texas, March 3, 1954 through March 2, 1955

Species	No. Caught	Average Length (inches)	Average Weight (pounds)	Total Weight (pounds)
L. M. Black Bass	96,370.43	10.60	.55	53,003.73
Spotted Bass	2,618.60	11.49	.73	1,911.57
White Crappie	6,206.75	9.16	.37	2,296.49
Black Crappie	18,380.15	8.99	.55	10,109.08
Warmouth	33,873.80	6.50	.22	7,452.23
Redear Sunfish	66,566.50	6.51	.18	11,981.97
Bluegill Sunfish	79,555.20	6.10	.20	15,911.04
Spotted Sunfish	7,058.10	4.30	.05	352.90
Longear Sunfish	241.25	6.04	.15	36.18
White Bass	6,012.30	9.52	.42	2,525.16
Yellow Bass	16,854.85	7.72	.24	4,045.16
Channel Catfish	544.60	9.03	.22	119.81
Bullhead Catfish	807.10	10.31	.68	548.82
Flathead Catfish	123.19	15.00	1.16	142.90
Freshwater Drum	1,382.25	13.30	1.06	1,465.18
Chain Pickerel	17,938.85	14.90	.71	12,736.58
Totals	354.503.92			124,638.81

Table 2. Percent of Total by Number and Weight, 16 Species, Caddo Lake, Harrison County, Texas, March 3, 1954 through March 2, 1955.

Species	No. Caught	Weight (Pounds)	Percent of Total No.	Percent of Total Weight
L. M. Black Bass	96,370.43	53,003.73	27.18	42.53
Spotted Bass	2,618.60	1,911.57	.74	1.53
White Crappie	6,206.75	2,296.49	1.75	1.84
Black Crappie	18,380.15	10,109.08	5.18	8.11
Warmouth	33,873.80	7,452.23	9.56	5.98
Redear Sunfish	66,566.50	11,981.97	18.78	9.61
Bluegill Sunfish	79,555.20	15,911.04	22.44	12.76
Spotted Sunfish	7,058.10	352.90	1.99	.28
Longear Sunfish	241.25	36.18	.07	.03
White Bass	6,012.30	2,525.16	1.70	2.03
Yellow Bass	16,854.85	4,045.16	4.75	3.25
S. Channel Catfish	544.60	119.81	.15	.10
Bullhead Catfish	807.10	548.82	.23	.44
Flathead Catfish	123.19	142.90	.03	.11
Freshwater Drum	1,382.25	1,465.18	.39	1.18
Chain Pickerel	17,938.85	12,736.58	5.06	10.22
Totals	354.503.92	124,638.81	100.00	100.00

Table 3. Fish Per Man-Hour for Each Species, Caddo Lake, Harrison County, Texas, March 3, 1954 through March 2, 1955

Species	Number Caught	Number Hours Fished	Fish Per Man-Hour
L. M. Black Bass	1,323	1,979	.66
Spotted Bass	5	23	.21
Sunfish	10,964	3,336	3.28
Pike	54	199	.27
Crappie (Black & White)	90	106	.84
White Bass	43	109	.39
Yellow Bass	13	65	.20
Drum	2	20	.10
Bullhead	1	5	.20
Flathead	1	3	.33
Gar	1	9	.11

No pure catches of channel catfish were examined.

Table 4. Fish Per Man-Hour for Each Method of Fishing, Caddo Lake, Harrison County, Texas, March 3, 1954 through March 2, 1955

Method	No. Caught	No. Hours Fished	Fish Per Man-Hour
Casting	4,406	7,044	.62
Still Fishing	15,692	7,614	2.06
Fly Fishing	191	146	1.30
Trolling	60	54	1.11

Table 5. Fish Per Man-Hour for Each Type of Bait Used, Caddo Lake, Harrison County, Texas, March 3, 1954 through March 2, 1955

Bait Used	No. Caught	No. Hours Fished	Fish Per Man-Hour
Plugs	3,726	6,287	.59
Worms	13,354	5,050.5	2.64
Artificial flies	191	146	1.30
Minnows	1,250	1,179.5	1.05
Crayfish	166	67	2.47

Table 6. Periods of Best Fishing for Largemouth Bass in Caddo Lake As Indicated by Actual Creel Checks, March 3, 1954 through March 2, 1955

Table 7. Periods of Best Fishing for Spotted Bass in Caddo Lake as Indicated by Actual Creel Checks, March 3, 1954 through March 2, 1955

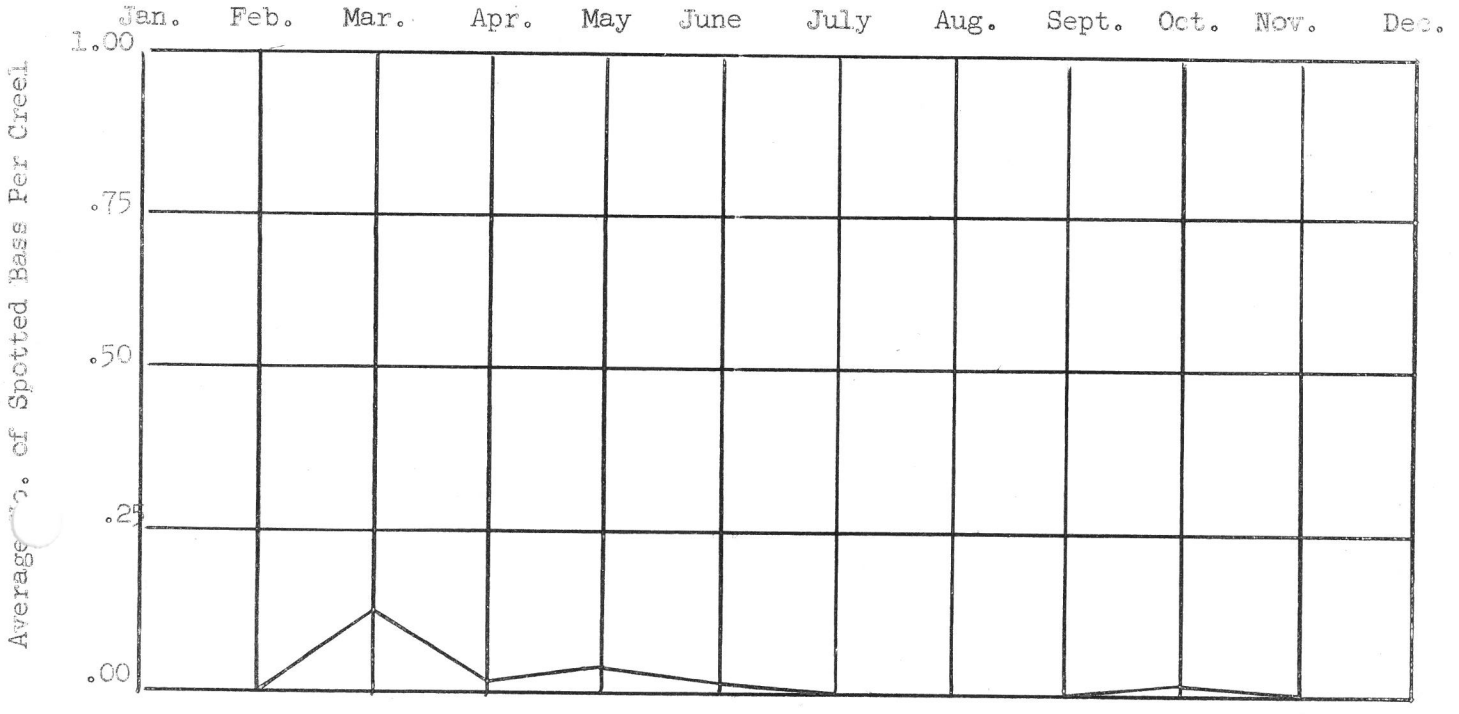

Table 8. Periods of Best Fishing for White Crappie in Caddo Lake as Indicated By Actual Creel Checks, March 3, 1954 through March 2, 1955

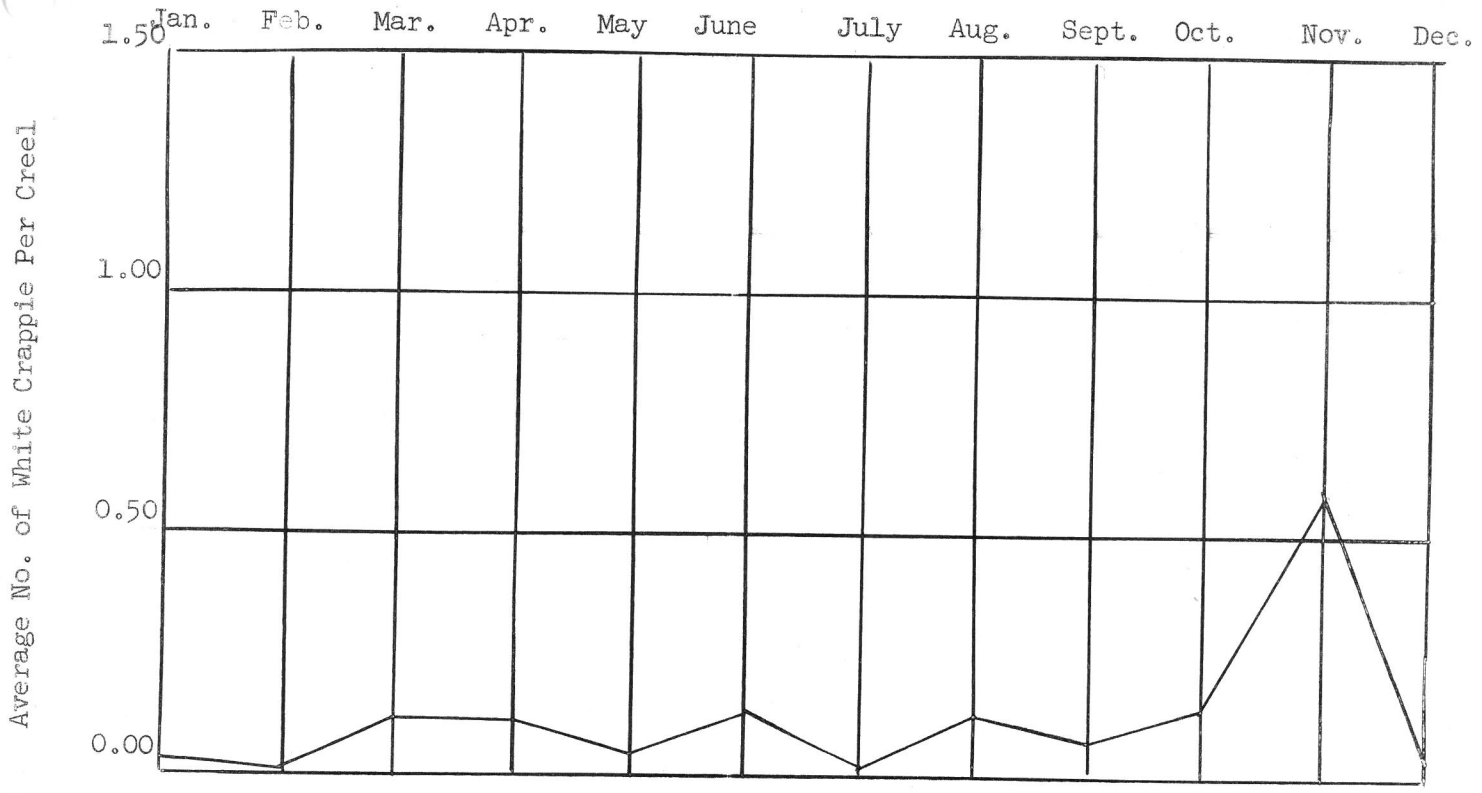

Table 9. Periods of Best Fishing for Black Crappie in Caddo Lake as Indicated by Actual Creel Checks, March 3, 1954 through March 2, 1955

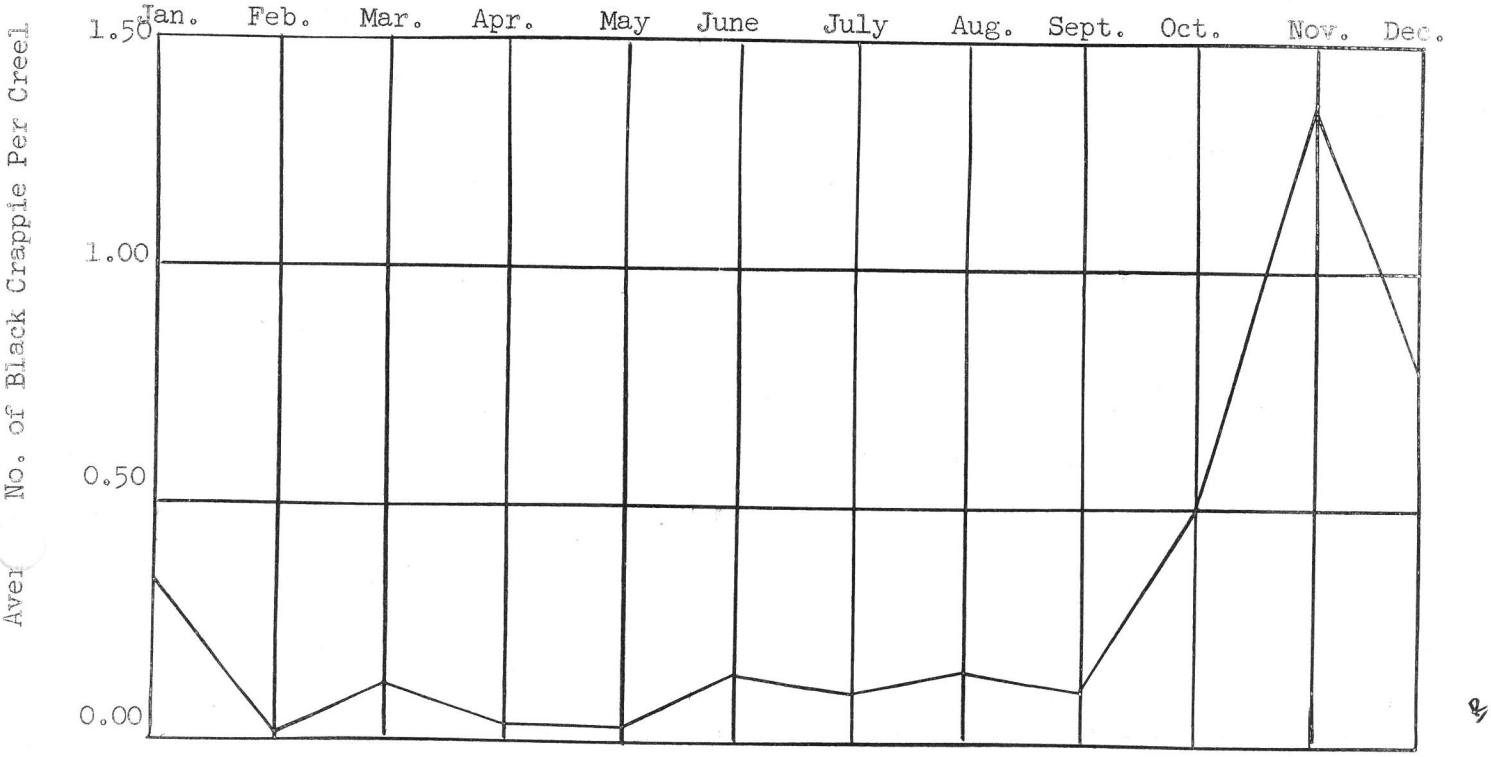

Table 10. Periods of Best Fishing for Bream (Redear, Bluegill, Warmouth, Longear, and Spotted Sunfish) Fishing in Caddo Lake as Indicated By Actual Creel Checks, March 3, 1954 through March 2, 1955.

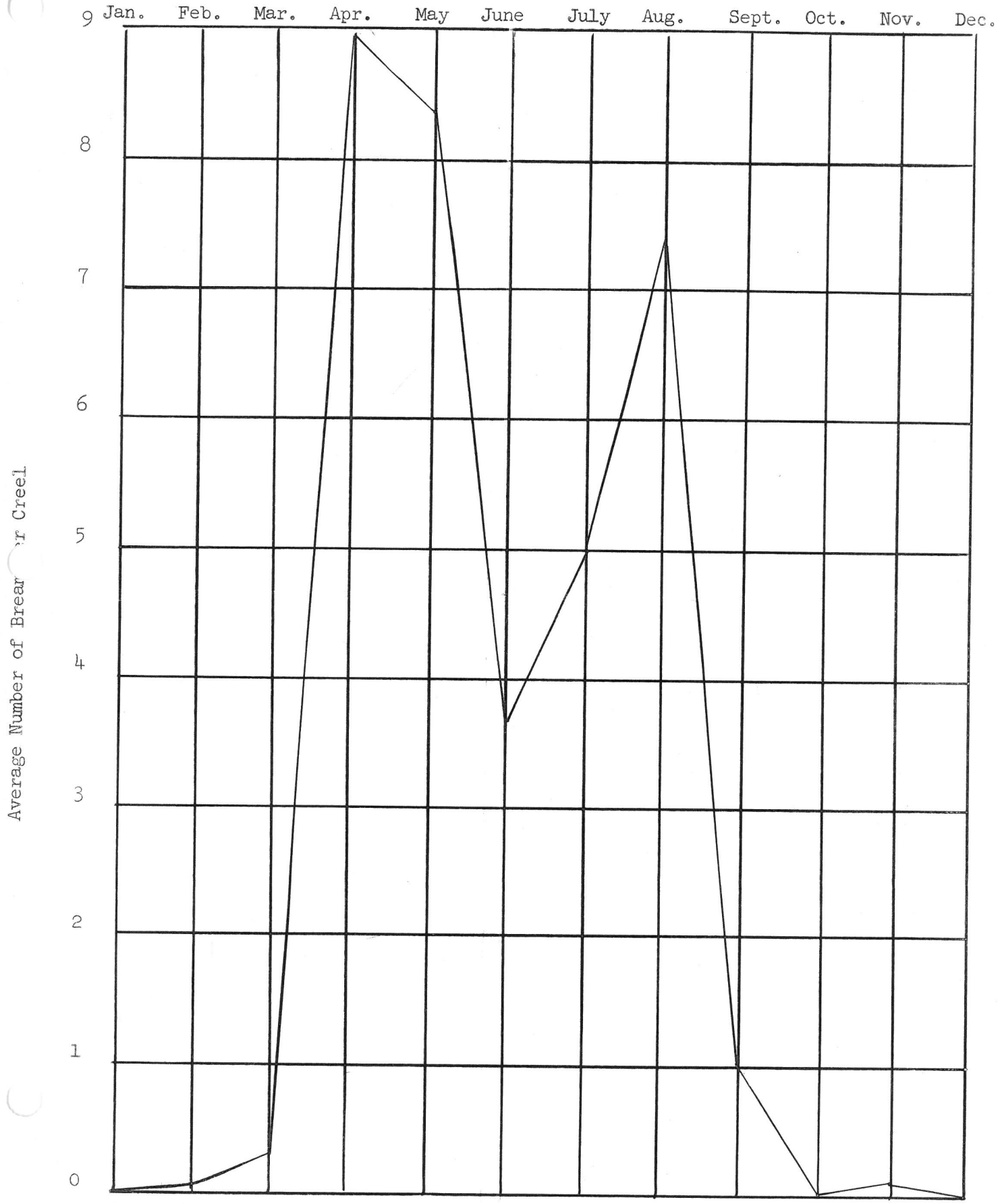

Table 11. Periods of Best Fishing for White Bass in Caddo Lake As Indicated By Actual Creel Checks, March 3, 1954 through March 2, 1955

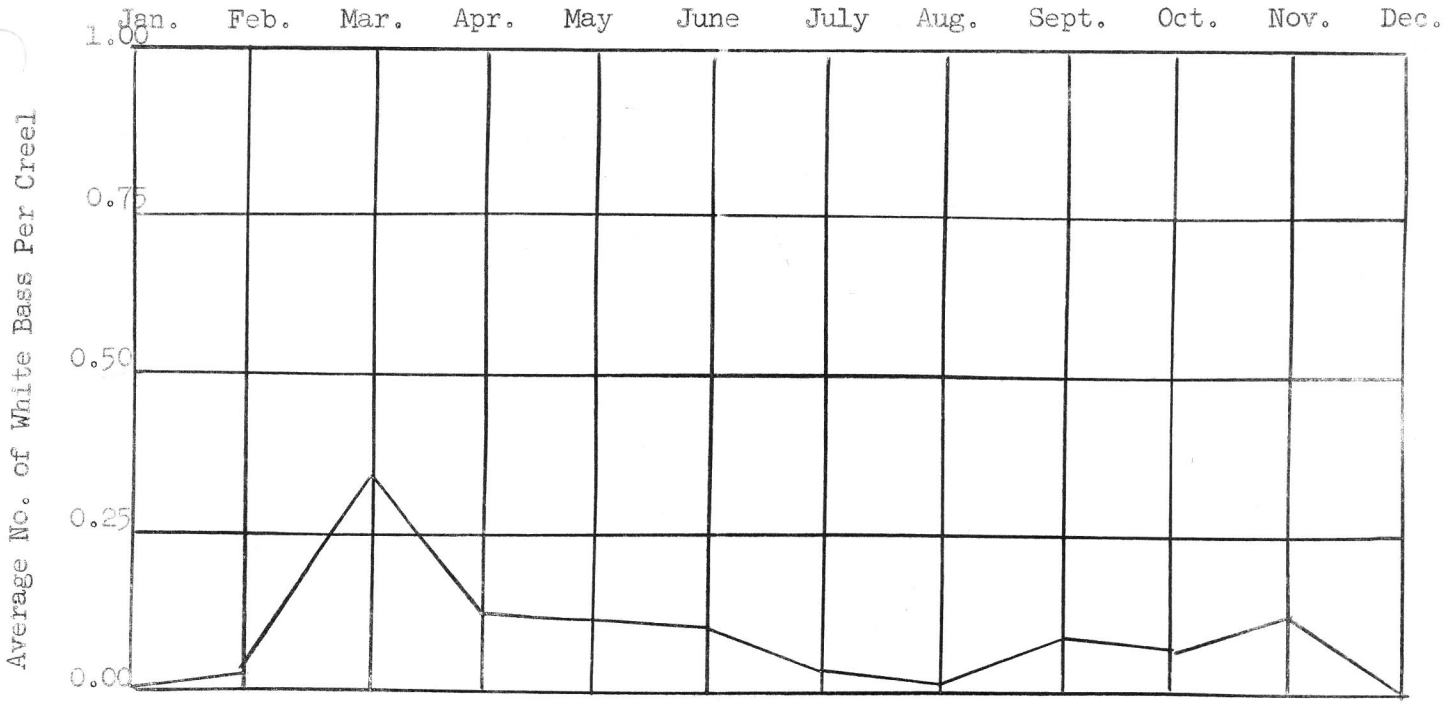

Table 12. Periods of Best Fishing for Yellow Bass in Caddo Lake As Indicated By Actual Creel Checks, March 3, 1954 through March 2, 1955

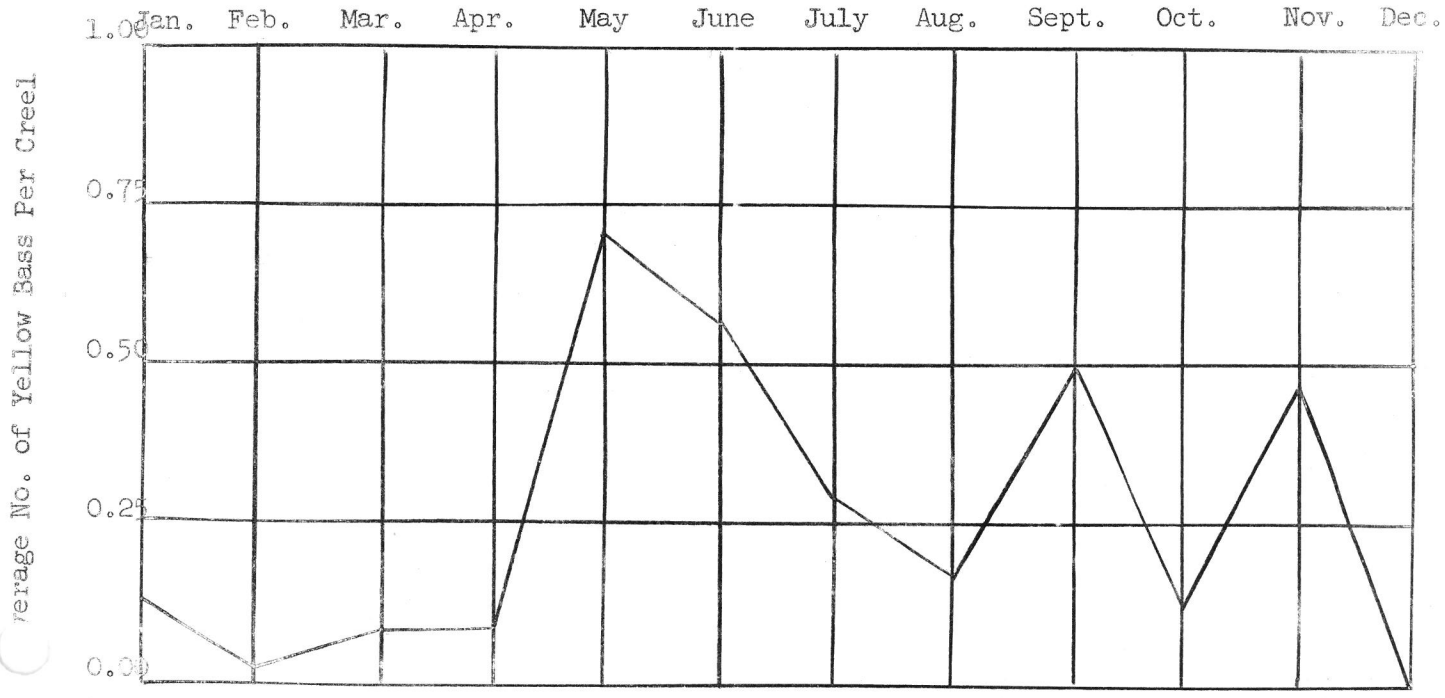

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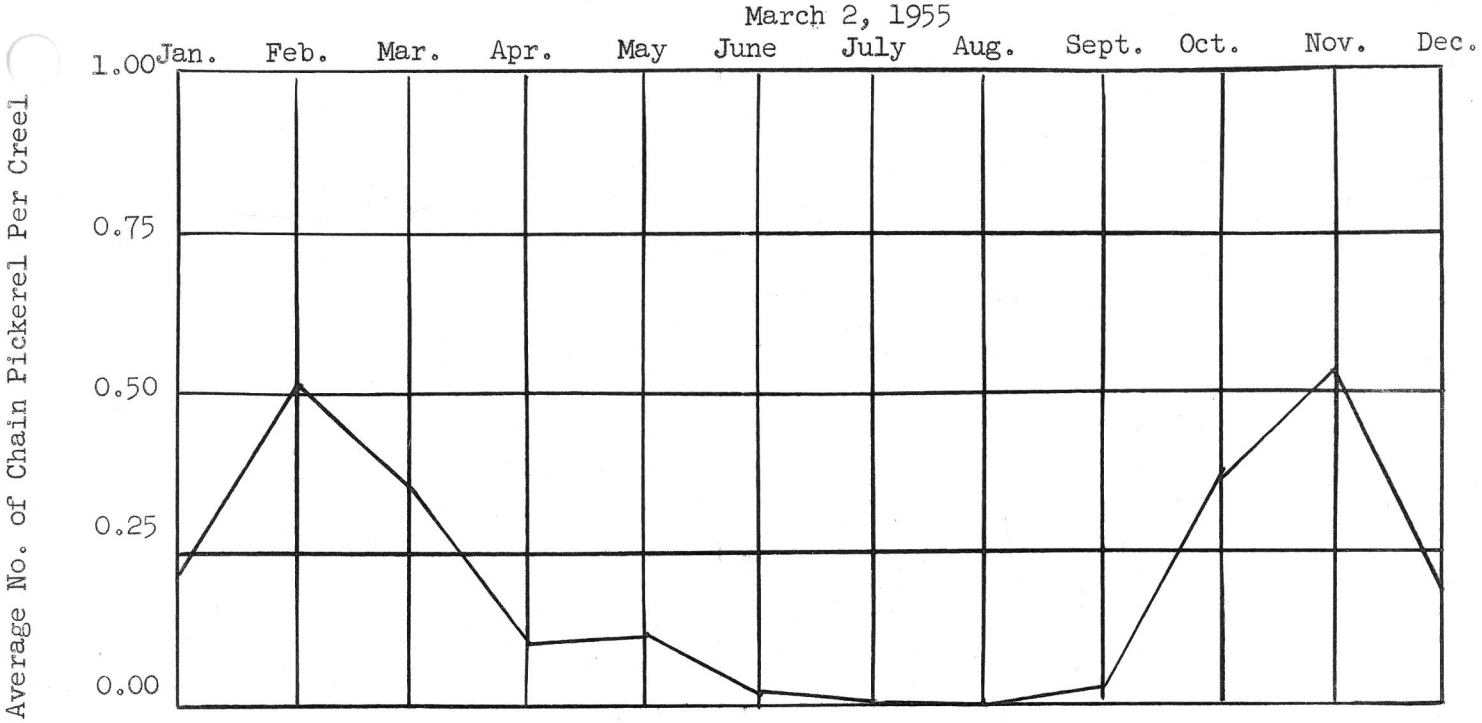
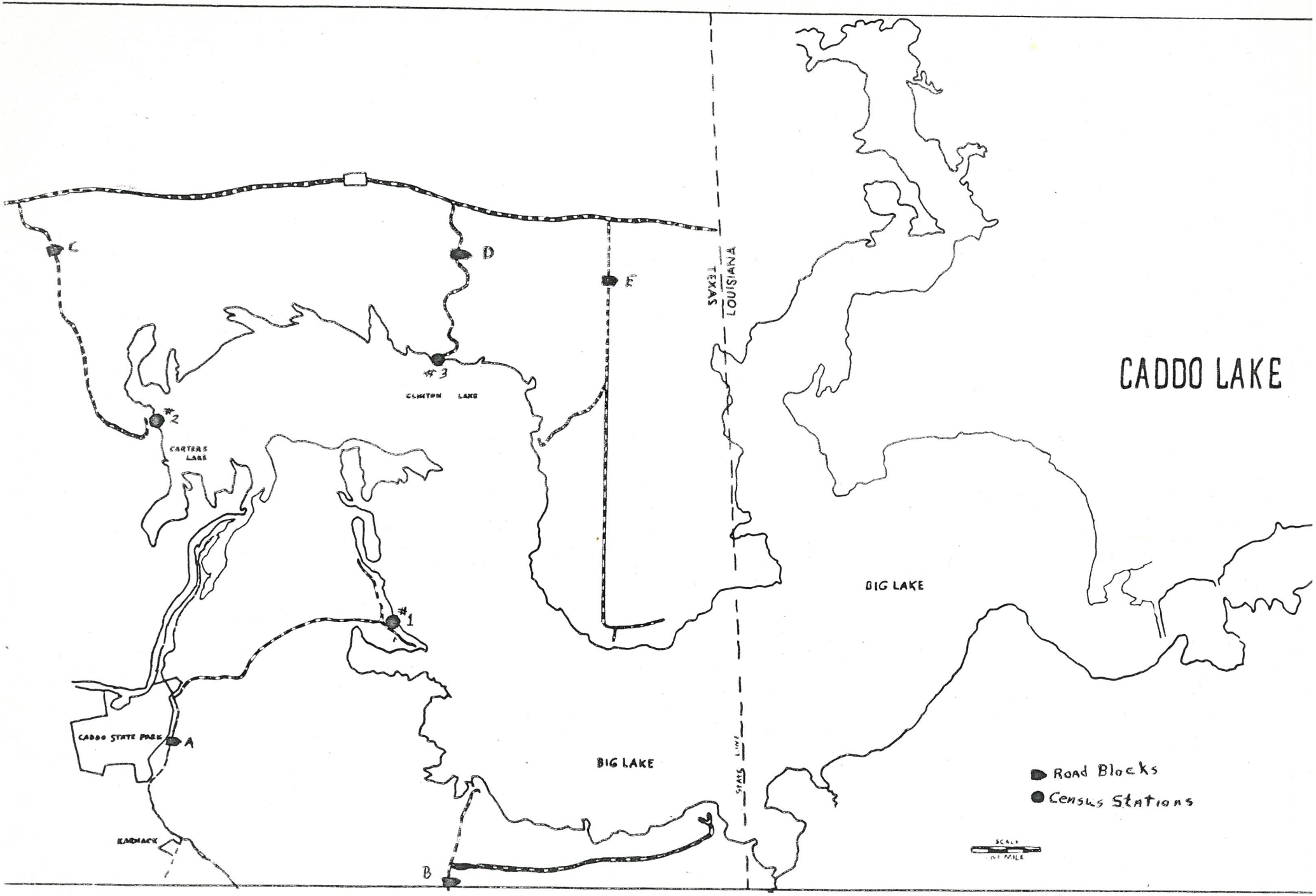
Table 13. Periods of Best Fishing For Chain Pickerel in Caddo Lake as Indicated by Actual Creel Checks, March 3, 1954 through March 2, 1955




CADDO LAKE
TEXAS
LOUISIANA
STATE LINE
BIG LAKE
BIG LAKE
CLINTON LAKE
CARTERS LAKE
CADDO STATE PARK
EARHACK
#1
#2
#3
A
B
C
D
E
Road Blocks
Census Stations
SCALE
1/2 MILE

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