

# RESULTS OF CREEL CENSUS ON FOUR NORTH LOUISIANA LAKES

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## ABSTRACT

Four lakes representing widely different types but of generally comparable size are compared from the standpoint of sustained angler harvest. The range in size is from 1000 acres to 2200 acres, in age from 5 years to 30 years, and from an artificial impoundment to a cut off stream channel. All four lakes are dependent to a large extent on the metropolitan area of Monroe, Louisiana for their fishing public. The catch rate varied from 0.4 pounds per hour on Bayou DeSiard to 1.2 pounds per hour on Bussey Lake. The yield varied from a high of 215 pounds per acre on Bussey Lake to a low of 14 pounds per acre on Lafourche Lake.

A general description of the four lakes is presented including comments as to the adequacy of the boat rental facilities and access points. The impact of these factors on the harvest is discussed. Heavy fishing pressure on the lakes under study did not cause a marked reduction in the catch per hour. Rotenone samples indicate little change in the standing crop during the period of the study. It is concluded that these lakes could all withstand much heavier fishing pressure and still yield acceptable catch rates.

## INTRODUCTION

Fishing success is the only reliable criterion of the excellence of a fishing lake. The best measure of fishing success is a creel census. A complete creel census on most lakes is either physically or financially unfeasible. The study herein reported is the results of a creel survey on 4 lakes in northeast Louisiana. Two of the lakes furnish only limited access; on the other two lakes unlimited access is available. The results indicate the estimated harvest on each of these four lakes.

## DESCRIPTION OF THE STUDY AREAS

Bayou DeSiard, which furnishes the city of Monroe, Louisiana, with its water supply, is a cut off stream channel. The lake meanders thru the city and surrounding parish for a total length of 31.2 miles. The width of the lake varies from 600 feet to 1400 feet. The maximum depth of this lake, which is found only in the immediate vicinity of the dam, is 37 feet and the average depth is 10 feet at pool stage (71 feet mean sea level). Bayou DeSiard comprises a total of 1,215 acres and has been in existence for over 30 years. The exact date of the completion of the present dam and spillway is 1937 but the lake was reported prior to that date.

There are a number of cross dams on the lake which tend to make it a series of lakes. Culverts relatively near the surface of the water connect the portions of the lake; therefore it is managed as one lake. There are 3 commercial boat docks on this lake, but due to the culvert and dam placement, over 70 percent of the lake is not served by a commercial boat dock. Therefore, over 90 percent of the fishermen using the lake, use privately owned boats. There are public access points to all segments of the lake and this in itself may

restrict the economic feasibility of other commercial boat docks being built. Commercial fishing on this lake is restricted to the months of October thru March of each year. No other special restrictions are in use.

Black Bayou Lake is located 5 miles northeast of the city limits of Monroe, Louisiana. This lake of 2,000 acres was impounded at the same time as Bayou DeSiard and has an average depth of 6 feet. It is connected to Bayou DeSiard by two culverts located 8 feet below the surface of the water. The fish population in this lake differs from that present in Bayou DeSiard. Therefore, the lake is managed and reported separately. This cypress studded lake is owned almost entirely by Cities Service Oil Company. There are two commercial boat liveries on the lake and both furnish launching facilities for private boats. With the exception of a small number of people who walk out to the bank of the lake to fish, all access to the lake must be by one of the commercial boat docks. During the duck hunting season, Black Bayou Lake is closed to fishing during the morning hours. This is the only lake of the four with any restrictions on sport fishing. Commercial fishing is unrestricted.

A description of Bussey Lake which is located 30 miles north of Monroe, Louisiana was presented by Davis and Hughes (1963). It comprises 2,200 acres and has one concessionaire. The concessionaire operates a convenient outlet on one end of the lake and a boat dock and launching facility at the other end. In addition there are 7 entrance stiles to the lake. Approximately 85 percent of the fishermen using the lake enter at the two major loading points. Commercial fishing on the lake is limited to trotlines except during drawdowns when netting is permitted by contract.

Lafourche Lake is located near Columbia, Louisiana, which is 30 miles southwest of Monroe. A full description of this 1000 acre lake was presented by Lantz, et al. (1964). It averages 8 feet in depth and is over 21 miles long. There are two commercial boat docks on the lake and over 125 private boat camps. These allow practically unlimited access to the lake. There are no special restrictions on either sport or commercial fishing.

## CREEL CENSUS METHODS

The creel census design for Bayou DeSiard made use of a moving boat census. Each census day two creel clerks started at the designated end of the lake. Days had previously been selected at random as had the time of starting. One clerk censused the lake in a boat; the other census clerk drove alongside the lake to each of the dams. The latter censused all of the fishermen fishing from the dam and also helped the first creel clerk move the boat and motor over each dam to the next stretch of the lake. Counts were made of all of the fishermen using the lake. Insofar as possible all of these fishermen were censused at the same time. Due to time limitations it was sometimes necessary to census only a portion of the fishermen in a particular segment of the lake. Numerous trees and stumps in the lake precluded night creel censusing.

Creel and count data were returned to the Monroe office for coding, placing on electronic data cards and used for subsequent analyses. Due to the fact that most parties were not finished fishing at the time of the creel survey, the catch in fish per hour was expanded to include the entire fishing trip. In a sufficiently large sample, fishermen should be interviewed, on an average, half way through their fishing trip. On this lake it was possible to verify this hypothesis. The data received from the census clerks for incomplete trips was multiplied by two and then checked against the completed trip data. It was discovered that there was not a statistically significant difference in the catch per hour nor hours per fishing trip.

On Black Bayou Lake the creel census was conducted somewhat differently. As there were only two major access points, a census clerk was stationed at each. Census days were selected at random and the census was conducted from daylight until dark. Fishermen entering the lake were counted, and fishermen leaving the lake were censused. Therefore, all fishermen had completed their fishing trips. Fishermen were questioned as to how long they had fished. These answers were verified by checking the count data and hourly tabulations of vehicles in the parking area. After each census day the records were returned to the Monroe office for coding, proceeding onto electronic data cards and used for subsequent analyses.

The creel census methods used on Bussey Lake has been previously reported by Davis and Hughes (1963). It corresponded generally with that method used on Black Bayou Lake. In addition to the dock counts accurate counts were made of the people entering at the 7 stiles. Periodically a creel clerk was assigned to check creels of fishermen using these areas. From these data it was possible to determine that the fishermen using the stiles were of the same fishermen population as those using the main boat docks. Catches were comparable, as were lengths of fishing trips.

The creel census on Lafourche Lake was designed to take into account the large number of access points. In this census, first the census days were chosen at random, then the hours of starting were selected. The census clerk started from a mid-point in the lake and went by boat to one end. On this trip the fishermen were counted and on the return trip they were checked. At the designated time, the creel clerk then counted and checked the fishermen on the other half of the lake. This complete count and check was done twice each census day. The hours of starting each of the counts was regulated according to the time required to make each previous count check.

## RESULTS AND DISCUSSION

The results of the creel census on Bayou DeSiard are presented in Table 1. This census is conducted one year out of every 3 and was originally designed to test the effects of population manipulation through a partial poisoning of the shad population in the lake. As the partial poisoning was completed in 1960, this explains in part the increase in the percent of successful fishermen from 46 percent in 1959 to 92 percent in 1962. The catch rate in pounds of fish per hour remained relatively constant with only a slight increase. This is in spite of the fact that there were a larger number of fishermen using the lake and actually harvested over 30 percent more fish in the 1962 fishing season than in the 1959 season.

Crappie made up the largest portion of the increase of the fish checked from 1959 to 1962 (Table 2). Bluegill sunfish also increased in the catch while other species dropped slightly. There was a decrease in the average weight of the crappie during the 1962 census year. This is apparently due to the increase in number of intermediate size crappie in the population as shown by the rotenone data which is presented in Table 3. As another year of creel data will be collected during the coming year, it will be interesting to note the probable effect on crappie fishing of the increased crappie population in the lake.

The catch of fish on Black Bayou Lake for the last two census years is outstanding. This is one of the better fishing lakes in north Louisiana as shown by the pounds per acre harvested (Table 4). The 130 pounds for the 1962-1963 census year is the highest we have recorded since starting creel census on this lake. The 1963-1964 census year shows a decided decline in spite of the fact that the catch rate in pounds per hour was higher than the other lakes in the study. The percent of successful fishermen dropped from 87 to slightly over

**TABLE 1**  
**RESULTS OF CREEL CENSUS ON BAYOU DeSIARD**

	1959	1962
Estimated fishermen	28,638	34,533
Estimated man hours	76,749.75	107,052.25
Estimated fish caught	68,445	151,945
Estimated pounds caught	28,065.2	44,202.2
Number fishermen checked	1,400	954
Number man hours	1,874.00	1,508.25
Number fish caught	1,672	2,091
Number pounds caught	688.1	609.3
Per cent successful	46.0	92.0
Hours/fishermen trip	2.68	3.16
Pounds/fishermen trip	0.98	1.28
Fish/hour	0.89	1.39
Pounds/hour	0.37	0.40
Pounds/acre	23.39	36.84

**TABLE 2**  
**CATCH OF FISH BY TYPE FROM BAYOU DeSIARD**

Kind of fish	No. fish checked		No. pounds checked		Average weight	
	1959	1962	1959	1962	1959	1962
Bass	104	37	158.1	55.9	1.52	1.51
Crappie	305	521	218.7	197.0	0.72	0.38
Bluegill sunfish	1131	1359	238.5	310.1	0.21	0.23
Other sunfish	91	158	25.6	31.3	0.28	0.20
Miscellaneous	41	17	48.2	14.4	1.18	0.85
<b>TOTAL</b>	<b>1672</b>	<b>2092</b>	<b>689.1</b>	<b>608.7</b>		

TABLE 3  
FISH POPULATION COMPOSITION IN BAYOU DeSIARD<sup>1</sup>

Species	1959	1960	1961	1962	1963	1964
<b>PREDATORY GAME FISH</b>						
Largemouth bass	11.6	2.6	12.1	5.3	10.6	10.7
Crappie	0.6	2.0	3.7	2.6	11.3	2.6
Total	12.2	4.6	15.8	7.9	21.9	13.3
<b>NON-PREDATORY GAME FISH</b>						
Bluegill sunfish	27.8	11.7	51.5	13.9	13.3	13.9
Other sunfish	3.7	4.1	4.2	11.1	4.9	20.7
Total	31.5	15.8	55.7	25.0	18.2	34.6
<b>NON-PREDATORY FOOD FISH</b>						
Buffalo	55.9	155.2	47.0	14.2	36.6	25.3
Bullhead catfish	—	0.4	1.7	0.1	0.5	—
Other food fish	12.3	—	3.6	2.6	—	11.5
Total	68.2	155.6	52.3	16.9	37.1	36.8
<b>PREDATORY FOOD FISH</b>						
Catfish	27.0	3.5	15.8	3.6	8.6	2.0
Gar	10.7	0.6	0.7	15.3	6.2	1.1
Bowfin	—	—	—	—	—	3.7
Total	37.7	4.1	16.5	18.9	14.8	6.8
<b>FORAGE FISH<sup>2</sup></b>						
Total	209.6	44.6	115.4	221.9	530.2	195.2
<b>GRAND TOTAL<sup>2</sup></b>	<b>403.3</b>	<b>273.5</b>	<b>289.4</b>	<b>311.8</b>	<b>637.0</b>	<b>332.6</b>
Total	31.5	15.8	55.7	25.0	36.6	25.3

<sup>1</sup> Expressed as pounds per acre of available size fish from rotenone samples.

<sup>2</sup> Includes intermediate and fingerling size fish.

TABLE 4  
RESULTS OF CREEL CENSUS ON BLACK BAYOU LAKE

	May 1962-May 1963	May 1963-May 1964
Estimated fishermen	62,644	47,488
Estimated man hours	307,815.50	230,003.25
Estimated fish caught	626,139	376,777
Estimated pounds caught	260,836.4	166,404.3
Number fishermen checked	5,024	3,150
Number man hours	24,956.50	14,800.25
Number fish caught	51,440	21,462
Number pounds caught	21,501.3	9,839.9
Per cent successful	87.0	81.5
Hours/fishermen trip	4.97	4.70
Pounds/fishermen trip	4.28	3.12
Fish/hour	2.06	1.45
Pounds/hour	0.86	0.66
Pounds/acre	130.42	83.20

81 per cent. This is still quite high and should not have caused such a large drop in the harvest. The major decline is in the number of fishermen actually using the lake. This decline as shown in Table 4 may be partially explained by the preference of the fishermen for one of the other lakes in the study. The catch of fish by type as shown in Table 5 indicates that there was a slight increase in the size of bass caught, but the average weights of the other fish checked remained relatively constant. The greatest decline in fishing effort was for the bluegill and other sunfish. As Black Bayou Lake is best known in the Monroe area for the extremely large sunfish caught, a poor sunfish fishing year is quite evident in the creel census data. The fish population composition as shown in Table 6 indicates that there has been

TABLE 5  
CATCH OF FISH BY TYPE FROM BLACK BAYOU LAKE

Kind of fish	Number of fish checked		Number of pounds checked		Average Weight	
	May 1962	May 1963	May 1962	May 1963	May 1962	May 1963
	May 1963	May 1964	May 1963	May 1964	May 1963	May 1964
Bass	1,405	1,160	2,021.9	1,781.3	1.44	1.54
Crappie	5,650	3,003	3,643.3	2,081.9	0.64	0.69
Bluegill sunfish	36,430	13,961	12,140.4	4,390.3	0.33	0.31
Other sunfish	7,912	3,267	3,594.8	1,434.8	0.45	0.44
Miscellaneous	43	71	100.9	151.8	2.35	2.14
<b>TOTAL</b>	<b>51,440</b>	<b>21,462</b>	<b>21,501.3</b>	<b>9,839.9</b>		

TABLE 6  
FISH POPULATION COMPOSITION IN BLACK BAYOU LAKE<sup>1</sup>

Species	1964
<b>PREDATORY GAME FISH</b>	
Largemouth bass	16.4
Black crappie	10.4
<b>Total</b>	<b>26.8</b>
<b>NON-PREDATORY GAME FISH</b>	
Bluegill sunfish	31.0
Other sunfish	19.4
<b>Total</b>	<b>50.4</b>
<b>PREDATORY FOOD FISH</b>	
Spotted gar	11.6
<b>Total</b>	<b>11.6</b>
<b>FORAGE FISH<sup>2</sup></b>	
<b>Total</b>	<b>148.4</b>
<b>GRAND TOTAL<sup>2</sup></b>	<b>260.4</b>

<sup>1</sup> Expressed as pounds per acre of available size fish from rotenone samples.

<sup>2</sup> Includes intermediate and fingerling size fish.

TABLE 7  
RESULTS OF CREEL CENSUS ON BUSSEY LAKE

	May 1960 May 1961	May 1961 May 1962	May 1962 May 1963	May 1963 May 1964
Estimated fishermen	55,872	59,172	45,902	86,548
Estimated man hours	223,097.25	239,315.75	201,284.50	408,165.75
Estimated fish caught	416,552	555,806	352,826	830,258
Estimated pounds caught	211,364.0	205,486.0	175,511.5	473,417.7
Number fishermen checked	11,218	8,702	4,242	6,633
Number man hours	43,980.25	34,685.00	18,710.75	29,512.00
Number fish caught	85,703	79,543	30,782	45,598
Number pounds caught	45,606.9	29,685.8	15,520.2	21,627.8
Per cent successful	85.0	81.0	79.0	74.4
Hours/fisherman trip	3.93	3.99	4.41	4.45
Pounds/fisherman trip	4.05	3.41	3.66	3.30
Fish/hour	1.95	2.29	1.65	2.03
Pounds/hour	1.03	0.86	0.83	1.16
Pounds/acre	96.1	93.4	79.8	215.3

little detriment to the fish population by the heavy fishing pressure. There is a high percentage of game fish still present in the lake and most of the game fish are of catchable size. This old lake continues to furnish outstanding fishing for the people of the Monroe area.

The results of creel census on Bussey Lake are presented in Table 7. Probably the most outstanding figure in this table is the catch of fish during the 1963-1964 census year. When the lake was opened in 1960, the immediate catch from the lake was quite high. The per cent of successful fishermen was 85 for this year and it has dropped steadily since this time. The hours per fishing trip has increased throughout the period under study. The pounds of fish caught per hour have varied slightly and were highest during the past census year when the catch for the total year exceeded 215 pounds per acre. The size of the fish caught as shown in Table 8 indicates that the fish in this lake have grown rapidly and the harvest has not materially effected the size of fish caught. The average weight of the bass checked has increased from slightly over 1 pound to almost 1.9 pounds. The size of crappie creel increased from 0.27 pound to 0.70 pound. The bluegill sunfish checked have decreased in average weight while the other sunfish have varied in size from year to year. The miscellaneous fish creel, which on this lake are composed primarily of channel catfish, have increased in size each year since the time of opening of the lake. In spite of the extremely high harvest on this lake, the fish population composition as shown in Table 9 has not been adversely affected. The weight of bass per acre has increased for the last 3 years and the poundage of crappie increased in the 1964 samples. The weight of bluegill sunfish per acre has increased steadily since the opening of the lake while the other sunfish of available size decreased in the 1964 samples. The number of buffalo in the lake have increased throughout the sampling period and it is anticipated that a heavier cropping of the commercial species will be necessary during the coming year. The shad population in the lake took a decided decrease in the 1964 samples. This is due, in part, to the rapidly growing bass and crappie populations which preyed heavily on the shad population during the fall and winter seasons.

The results of the creel census on Lafourche Lake indicate that this was the poorest fishing lake in this study, at least in certain

TABLE 8  
CATCH OF FISH BY TYPE FROM BUSSEY LAKE

Kind of fish	Number of fish checked				Average weight				Number of pounds checked				
	May 1960	May 1961	May 1962	May 1963	May 1960	May 1961	May 1962	May 1963	May 1960	May 1961	May 1962	May 1963	May 1964
Bass	21,786	4,881	1,900	1,609	23,327.0	5,787.3	3,101.8	2,989.1	1.07	1.19	1.63	1.86	
Crappie	19,050	45,720	8,295	13,820	5,111.4	13,094.2	4,652.2	9,687.9	0.27	0.29	0.56	0.70	
Bluegill sunfish	29,986	26,164	19,331	29,143	9,854.1	9,148.3	6,773.4	8,214.9	0.35	0.35	0.35	0.28	
Other sunfish	10,107	1,958	753	729	2,041.2	531.4	295.4	235.4	0.20	0.27	0.39	0.32	
Miscellaneous	4,774	820	503	327	5,273.2	1,124.6	697.4	500.5	1.10	1.37	1.39	1.53	
TOTAL	85,703	79,543	30,782	45,626	45,606.9	29,635.8	15,520.2	21,627.8					



**TABLE 9**  
**FISH POPULATION COMPOSITION IN BUSSEY LAKE<sup>1</sup>**

Species	1959	1960	1961	1962	1963	1964
<i><b>PREDATORY GAME FISH</b></i>						
Largemouth bass	47.0	5.6	13.6	7.2	5.0	12.9
Crappie	0.3	5.0	38.4	7.5	1.9	3.5
Total	47.3	10.6	52.0	14.7	6.9	16.4
<i><b>NON-PREDATORY GAME FISH</b></i>						
Bluegill sunfish	1.0	16.5	13.0	9.2	20.1	26.4
Other sunfish	1.8	2.8	3.5	3.0	10.2	7.1
Total	2.8	19.3	16.5	12.2	30.3	33.5
<i><b>NON-PREDATORY FOOD FISH</b></i>						
Buffalo	—	1.5	1.8	10.7	9.2	32.9
Bullhead catfish	0.9	1.2	0.2	0.8	0.4	0.9
Total	0.9	2.7	2.0	11.5	9.6	33.8
<i><b>PREDATORY FOOD FISH</b></i>						
Channel catfish	0.5	0.6	—	—	—	—
Bowfin	2.0	2.0	—	1.3	0.7	4.9
Total	2.5	2.6	—	1.3	0.7	4.9
<i><b>FORAGE FISH<sup>2</sup></b></i>						
Total	31.0	100.6	204.9	171.2	272.0	87.7
<b>GRAND TOTAL<sup>2</sup></b>	<b>90.6</b>	<b>137.2</b>	<b>282.5</b>	<b>230.4</b>	<b>347.5</b>	<b>190.5</b>

<sup>1</sup> Expressed as pounds per acre of available size fish from rotenone samples.

<sup>2</sup> Includes intermediate and fingerling size fish.

**TABLE 10**  
**RESULTS OF CREEL CENSUS ON LAFOURCHE LAKE**

	March 1962-March 1963	March 1963-March 1964
Estimated fishermen	9,154	5,928
Estimated man hours	36,799.00	23,489.00
Estimated fish caught	41,925	28,657
Estimated pounds caught	23,477.8	14,328.0
Number fishermen checked	1,378	601
Number man hours	2,775.00	1,190.75
Number fish caught	3,153	1,450
Number pounds caught	1,771.6	731.1
Per cent successful	68.4	65.4
Hours/fisherman trip	4.02	3.96
Pounds/fisherman trip	2.58	2.44
Fish/hour	1.14	1.22
Pounds/hour	0.64	0.61
Pounds/acre	23.48	14.33

TABLE 11  
CATCH OF FISH BY TYPE FROM LAFOURCHE LAKE

Kind of fish	Number of fish checked		Number of lbs. checked		Average Weight	
	March 1962	March 1963	March 1962	March 1963	March 1962	March 1963
	March 1963	March 1964	March 1963	March 1964	March 1963	March 1964
Bass	163	25	203.7	40.8	1.25	1.63
Crappie	1,728	558	1,159.1	354.1	0.67	0.63
Bluegill sunfish	1,031	782	342.2	266.1	0.33	0.34
Other sunfish	239	62	69.1	20.6	0.29	0.33
Miscellaneous	5	24	9.2	48.6	1.84	2.03
<b>TOTAL</b>	<b>3,166</b>	<b>1,451</b>	<b>1,783.3</b>	<b>730.2</b>		

respects (Table 10). The pounds of fish caught per hour exceeded that of Bayou DeSiard and were only slightly less than the catch per hour from Black Bayou. All three lakes had lower catch rates than those recorded on Bussey Lake. The per cent of successful fishermen is comparable on all 4 lakes. However, it is apparent that this lake is not heavily fished in spite of the good success and the good catches made by fishermen using the lake. In the two census years presented in this study, the bass checked increased in average weight while the other species checked remained relatively constant (Table 11). The fish population samples from this lake are presented in Table 12. In 1964 there was a decline in all of the fish under study. This is due in part to an only partially successful water level fluctuation program. It is anticipated that the standing crop and the catch of fish for subsequent years will increase steadily.

#### DISCUSSION AND CONCLUSIONS

The absence of a large number of commercial boat docks on these lakes did not apparently deter fishermen from using the lake. On each of the lakes there were two or three boat docks where boats were for rent. In addition with the exception of one lake, other access points were available and on two of these lakes access was practically unlimited. This then is not the reason for the difference in usage by the fishermen of these lakes. Another reason which has been advanced for the usage of a particular lake by fishermen is how close it is to a population center. Bayou DeSiard and Black Bayou Lake are located very close to the city of Monroe. The other two lakes are located approximately 30 miles each from the city of Monroe. Black Bayou Lake, though 5 miles further from the city than Bayou DeSiard, supports a much heavier fishermen population. Bussey Lake is much more heavily harvested than is Lafourche Lake. Therefore, we must rule out the factor of distance as being the controlling reason for the fishing pressure on these 4 lakes.

Large catches of fish will usually attract fishermen. If these large catches continue, the fishermen will continue to patronize the lake. This was apparently the reason for the large catches and high fishing pressure on Bussey Lake during the 1963-1964 census year. Due to the interest in this lake, Black Bayou Lake apparently did not draw as many fishermen as normal.

TABLE 12  
FISH POPULATION COMPOSITION IN LAFOURCHE LAKE<sup>1</sup>

Species	1962	1963	1964
<i>PREDATORY GAME FISH</i>			
Largemouth bass	14.4	2.2	0.3
Crappie	30.9	5.6	0.2
Total	45.3	7.8	0.5
<i>NON-PREDATORY GAME FISH</i>			
Bluegill sunfish	36.1	51.7	5.3
Other sunfish	9.7	7.3	3.1
Total	45.8	59.0	8.4
<i>NON-PREDATORY FOOD FISH</i>			
Buffalo	16.6	73.1	1.2
Bullhead catfish	5.5	0.7	0.4
Other food fish	—	—	0.7
Total	22.1	73.8	2.3
<i>PREDATORY FOOD FISH</i>			
Gar	1.7	6.1	2.0
Bowfin	22.2	5.6	1.0
Total	23.9	11.7	3.0
<i>FORAGE FISH<sup>2</sup></i>			
Total	19.2	194.4	44.7
<b>GRAND TOTAL<sup>2</sup></b>	<b>168.6</b>	<b>352.7</b>	<b>82.2</b>

<sup>1</sup> Expressed as pounds per acre of available size fish from rotenone samples.

<sup>2</sup> Includes intermediate and fingerling size fish.

Lafourche Lake did attract a slightly larger number of fishermen during the 1962-1963 season. But yet it did not approach its potential in fisherman usage. The same is true for Bayou DeSiard. The major differences between the lakes that has been recognized by the authors is, that on Black Bayou and Bussey Lake the lakes are impoundment type with a large expanse of water for the fishermen to go out and search for the fish. In both Bayou Desiard and Lafourche Lake the lake is long and narrow. These apparently are not preferred by the fishermen in this state. It is possible with the data so far collected to make this as a final statement. It is obvious that both of the impoundment type lakes are much more heavily fished than the old stream channel type lake herein censused. It is also apparent that the impoundment type lake supports a higher fish population of the desirable species than either of the other two lakes.

In recent years it has been proposed by many fisheries biologists that an extremely heavy harvest of fish from a lake will cause the fishing success for the succeeding year to decrease. It has been further opined that heavy cropping will have a depressant effect upon the fish population. From the creel census figures herein presented, and from the rotenone sampling data, there is no evidence to indicate that a harvest in excess of 100 pounds of fish per acre will be of sufficient effect on the fish population to seriously curtail the fishing success for the ensuing year. It is too early at this writing to determine the effect of removing over 200 pounds of fish per acre. Subsequent creel data from Bussey Lake will indicate the approximate poundage which can be harvested from a lake of this type and still have continued good fishing for subsequent years.

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## FOOD AND FEEDING HABITS OF LONGNOSE GAR IN CENTRAL MISSOURI

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Presented Before

**The 18th Annual Conference**

of the

**Southeastern Association of Game and Fish Commissioners**

October 18-21, 1964  
Clearwater, Florida

#### ABSTRACT

Food habits, feeding habits, and relative vulnerability of various prey species to predation by young longnose gar were studied as part of a general life history research project. Stomach analysis of yearling and older gar revealed a predominant fish diet with gizzard shad the most common species found. Seventy-six per cent of the stomachs of these gar were empty. Regurgitation is probably the major cause of the high percentage of empty stomachs of gar caught in gill nets. The stomachs of young-of-the-year longnose gar contained almost **entirely fish**, with various minnows the most common items. Feeding habits of the young gar are described. An experiment concerning the