

# CHANNEL CATFISH AS AN ADDITIONAL SPORT FISH IN ALABAMA'S STATE-OWNED AND MANAGED PUBLIC FISHING LAKES<sup>1</sup>

by

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## ABSTRACT

Channel catfish were stocked in 16 Alabama state-owned and managed public fishing lakes in an effort to create an additional sport fishery.

The catfish harvest was generally low the first year after stocking with 100 catfish fingerlings per acre in an established bass-bluegill-redear population. The harvest increased during the second year.

The catfish harvest was 54.4 pounds per acre after the first year of fishing in a 100-acre public fishing lake in Alabama which was initially stocked with 100 channel catfish fingerlings per acre in addition to the normal stocking rate of bass, bluegill, and redear.

White catfish did not appear to contribute as much to the overall catch as channel catfish under the conditions studied.

Channel catfish were well received by the fishing public and contributed significantly to the overall catch in Alabama's public fishing lakes.

## INTRODUCTION

There are 19 state-owned and managed public fishing lakes under the direct supervision of the Alabama Game and Fish Division. They provide a total of 1,563 surface acres of water. These lakes were constructed in areas which lacked sufficient natural waters to satisfy the fishing needs of the public and as a result receive extremely heavy fishing pressure. With ever increasing fishing pressure on these lakes, an additional sport fish was needed to satisfy the fishing demands of the public.

The channel catfish, *Ictalurus punctatus* (Rafinesque), has proven to be a suitable fish in combination with bluegill, *Lepomis macrochirus* Rafinesque; redear sunfish, *Lepomis microlophus* (Günther); and largemouth bass, *Micropterus salmoides* (Lacepede) when stocked at the rate of 100 fingerling catfish per acre (Prather, 1964). Limited studies conducted by the Alabama Game and Fish Division showed that the population balance of ponds stocked with 100 channel catfish per acre did not change appreciably over the first several years. These studies also indicated that stocking channel catfish in established bass-bluegill-redear populations was not as effective as the stocking in initially expanding fish populations. (Crance and McBay, 1966).

Channel catfish were first stocked in two state-owned and managed public fishing lakes at the rate of 200 fingerlings per acre in April, 1959. The results of these stockings were inconclusive since no significant catch of channel catfish was recorded from the two public lakes (Rogers, 1961). In 1966 channel catfish were stocked in a 100-acre public lake at 50 fingerlings per acre. A review of catch records from this public lake showed that this stocking did not result in a significant catch of catfish over the next several years. It appeared at that time that the channel catfish would not contribute significantly to the public lake program; however, additional studies had indicated that the potential was there.

In February, 1972 it was decided again to stock channel catfish in the state-owned and managed public fishing lakes in an attempt to create an additional sport fishery. In addition, it was hoped that the channel catfish would aid in maintaining a population balance by assisting in the control of the forage populations when the catfish reached a piscivorous size.

## MATERIALS AND METHODS

A total of 212 channel catfish weighing 3 to 5 pounds each were stocked in Dale and Fayette County Public Lakes in February, 1972. These catfish were surplus from a fish hatchery. During that same season Fayette and Lamar County Public Lakes were stocked with 100 channel catfish fingerlings per acre. Monroe County Public Lake was stocked with 100 white catfish, *Ictalurus catus* (Linnaeus), fingerlings per acre (Table 1). Barbour and Dallas County Public Lakes did not contain established bass-bluegill-redear populations at that time and were renovated before being stocked with channel catfish.

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Table 1. Catfish Stocking Record in Alabama's Public Fishing Lakes by Season.

<i>October 1, 1971 - September 30, 1972</i>				
<i>Name of Lake</i>	<i>Date</i>	<i>Species</i>	<i>Number</i>	<i>Size</i>
Barbour (75 acres)	August	Channel catfish	42,500	4"-6"
Dale (92 acres)	February	Channel catfish	72	3-5 lbs.
Dallas (100 acres)	April	Channel catfish	10,000	4"
Fayette (60 acres)	February	Channel catfish	140	3-5 lbs.
	March	Channel catfish	5,200	6"
	April	sChannel catfish	195	1 lb.
Lamar (68 acres)	March	Channel Catfish	5,800	6"
Monroe (94 acres)	May	White catfish	8,500	6"
<i>October 1, 1972 - September 30, 1973</i>				
Barbour (75 acres)	April	Channel catfish	5,400	6"-7"
Chambers (183 acres)	October	Channel catfish	3,700	6"-8"
	November	White catfish	2,500	6"-8"
	November	White catfish	1,175	6"
Clay (38 acres)	October	Channel catfish	4,000	6"-8"
Coffee (80 acres)	October	Channel catfish	8,000	6"-8"
Crenshaw (53 acres)	October	Channel catfish	5,300	6"-8"
DeKalb (120 acres)	October	Channel catfish	12,000	6"-8"
Fayette (60 acres)	October	Channel catfish	6,000	6"-8"
	November	White catfish	1,875	6"-8"
Marion (38 acres)	October	Channel catfish	4,000	6"-8"
Monroe (94 acres)	October	Channel catfish	1,500	6"-8"
Pike (45 acres)	October	Channel catfish	4,500	6"-8"
<i>October 1, 1973 - September 30, 1974</i>				
Barbour (75 acres)	October	Channel catfish	7,500	6"-8"
Chambers (183 acres)	October	Channel catfish	12,000	5"-8"
	December	Channel catfish	4,000	6"
	March	White catfish	38,200	1"-4"
Coffee (80 acres)	October	Channel catfish	2,000	6"-8"
Crenshaw (53 acres)	October	Channel catfish	1,000	6"-8"
	April	Channel catfish	2,920	8"
Dale (92 acres)	October	Channel catfish	1,103	2-3 lbs.
Dallas (100 acres)	October	Channel catfish	5,000	6"-8"
	February	White catfish	700	7"
	March	White catfish	6,388	8"
DeKalb (120 acres)	March	Channel catfish	8,000	8"-10"
Fayette (60 acres)	October	Channel catfish	3,000	6"-8"
	April	White catfish	2,200	6"-12"
Lee (130 acres)	October	Channel catfish	1,295	2-3 lbs.
	March	Channel catfish	2,300	10"-12"
Madison (105 acres)	October	Channel catfish	10,500	4"-6"
Marion (38 acres)	October	Channel catfish	4,500	6"-8"
Monroe (94 acres)	October	Channel catfish	6,000	6"-8"
	December	Channel catfish	3,000	6"
Pike (45 acres)	March	White catfish	2,000	8"
Walker (163 acres)	October	Channel catfish	16,300	6"-8"

Barbour County Public Lake was restocked with 566 channel catfish per acre in addition to 110 fingerling largemouth bass and 1,000 fingerling bluegill and redear (75% and 25% respectively) per acre during 1972. A supplemental feeding program was also conducted on this lake. This lake was opened to fishing June of the following year. A detailed discussion of the results of this program are covered in a paper by Nail and Powell, 1974.

Dallas County Public Lake was restocked with 100 channel catfish fingerlings per acre in addition to 100 fingerling largemouth bass and 1,000 fingerling bluegill and redear (75% and 25% respectively) per acre during 1972. This lake was also opened to fishing in June of the following year.

During the 1972-73 season, 10 public lakes were stocked with channel catfish. Seven received a stocking rate of 100 catfish fingerlings per acre. The total number of lakes which had been stocked with channel catfish up to this time was 13. Ten of these lakes had received at least one stocking of 100 catfish fingerlings per acre (Table 1).

Sixteen public lakes had been stocked with channel catfish by the 1973-74 season, and 13 had received a stocking rate of 100 channel catfish fingerlings per acre at least once (Table 1).

The catfish fingerlings stocked generally ranged in size from 6 to 8 inches in total length.

White catfish were stocked at varying rates in a total of five public lakes over the 3 year period (Table 1). Studies had demonstrated that the white catfish was more difficult to catch than the channel catfish and thereby might extend the period of good fishing (Prather, 1965).

The public lakes were fertilized at regular intervals with 20-20-5 N-P-K and triple superphosphate fertilizer to increase productivity and aid in the control of obnoxious underwater vegetation.

A \$1.00 daily fishing permit in addition to the appropriate fishing license was required for all fishermen 16 years of age and older. The creel limit on catfish was set at three per person per day in all lakes, except Barbour County Public Lake. The limit at this lake was initially set at six catfish per person per day with a charge of \$ .50 per pound. This limit was changed to three catfish per person per day and the charge per pound was discontinued after June 1, 1973.

Catch data were obtained from complete catch records. Fish taken from the public lakes were counted and weighed before the fishermen left the lake. The stocking data and catch data discussed in this paper covers the period from October 1, 1971 through September 30, 1974. In this study the fishing season for each year extended from October 1 through September 30 of the following year.

## RESULTS AND DISCUSSION

Channel catfish were stocked in the state-owned and managed public fishing lakes in Alabama in an effort to create an additional sport fishery. Earlier stockings of channel catfish in three public lakes had yielded inconclusive results; however, it was felt further attempts should be made to evaluate the channel catfish in the public lakes.

### 1971-72 Season

During the 1971-72 fishing season five public lakes were stocked with channel catfish and one public lake was stocked with white catfish. Two of these six public lakes, Barbour and Dallas County Public Lakes, were not opened to fishing until the following year.

Dale County Public Lake was stocked with 72 adult channel catfish during the 1971-72 season. Monroe County Public Lake was initially stocked with fingerling white catfish at 100 per acre. Fayette and Lamar County Public Lakes were stocked with 100 fingerling channel catfish per acre. In addition, Fayette County Public Lake also received a stocking of 140 adult channel catfish (Table 1).

The catfish harvest during the 1971-72 season from these four public lakes which were opened to fishing was 2,960 catfish weighing 2,438 pounds. Of this total, 2,193 catfish weighing 1,719 pounds were harvested from Fayette County Public Lake (Table 2). This represented a catch of 36.5 catfish per acre weighing 28.6 pounds (Table 3).

Fayette County Public Lake had been experiencing problems with crowded forage species. Pond analysis as described by Swingle (1956) indicated an overabundance of golden shiners, *Notemigonus crysoleucas* (Mitchill), and intermediate bluegill. As a result fishing had been poor. The lake was closed several times to bass fishing in efforts to restore a population balance. Since the bluegill fishing was poor and the lake was closed at times to bass fishing, the channel catfish became a very sought after fish. The channel catfish showed good growth, and this also increased fishermen interest. These two factors probably accounted for the high catfish harvest in comparison to the other public lakes at this time.

The catfish harvest from the three other public lakes was relatively insignificant. The low catch of 1.8 pounds per acre from Dale County Public Lake was no doubt due to the small number of catfish

stocked. Lamar County Public Lake contained a crowded bass population and the low catch of 3.2 pounds per acre probably resulted from the heavy bass predation on the catfish fingerlings (Table 3). In earlier studies the variation in the catfish harvest from ponds that contained established bass-bluegill-redear populations appeared to be related to the size of the catfish fingerlings stocked and the abundance of largemouth bass of a size capable of consuming the fingerlings (Crance and McBay, 1966).

Table 2. Catfish Catch in Alabama's State-Owned and Managed Public Fishing Lakes.

<i>October 1, 1971 - September 30, 1974</i>								
<i>Name of Lake</i>	<i>1971-72</i>		<i>1972-73</i>		<i>1973-74</i>		<i>Total</i>	
	<i>No.</i>	<i>Wt.</i>	<i>No.</i>	<i>Wt.</i>	<i>No.</i>	<i>Wt.</i>	<i>No.</i>	<i>Wt.</i>
Barbour	—	—	5,404	5,794	6,539	17,614	11,943	23,408
Chambers	—	—	902	707	2,976	3,065	3,878	3,772
Clay	—	—	32	19	1,084	791	1,116	810
Coffee	—	—	407	294	584	938	991	1,252
Crenshaw	—	—	610	493	1,715	1,958	2,325	2,451
Dale	26	167	72	181	392	1,812	490	2,160
Dallas	—	—	3,454	5,444	1,618	2,721	5,072	8,165
DeKalb	—	—	1,239	890	4,138	6,909	5,377	7,799
Fayette	2,193	1,719	1,670	1,565	1,154	1,491	5,017	4,775
Lamar	275	217	179	416	353	464	807	1,097
Lee	—	—	—	—	412	1,098	412	1,098
Madison	—	—	—	—	1,100	850	1,100	850
Marion	—	—	354	262	1,059	1,281	1,413	1,543
Monroe	466	335	420	592	1,038	2,048	2,194	2,975
Pike	—	—	18	13	439	467	457	480
Walker	—	—	—	—	1,359	647	1,359	647
TOTAL	2,960	2,438	14,761	16,670	26,230	44,174	43,951	63,282
Total excluding Barbour County	2,960	2,438	9,357	10,876	19,691	26,560	32,008	39,874

Table 3. Catfish Catch Per Acre in Alabama's State-Owned and Managed Public Fishing Lakes.

<i>October 1, 1971 - September 30, 1974</i>							
<i>Acres</i>	<i>1971-72</i>		<i>1972-73</i>		<i>1973-74</i>		<i>Wt.</i>
	<i>No.</i>	<i>Wt.</i>	<i>No.</i>	<i>Wt.</i>	<i>No.</i>	<i>Wt.</i>	
Barbour	75	—	—	72.0	77.2	87.2	234.8
Chambers	183	—	—	4.9	3.8	16.3	16.8
Clay	38	—	—	.8	.5	28.5	20.8
Coffee	80	—	—	5.0	3.6	7.3	12.0
Crenshaw	53	—	—	11.5	9.3	32.3	36.9
Dale	92	.3	1.8	.7	1.9	4.2	19.6
Dallas	100	—	—	34.5	54.4	16.1	27.2
DeKalb	120	—	—	10.3	7.4	34.4	57.5
Fayette	60	36.5	28.6	27.8	26.0	19.2	24.8
Lamar	68	4.0	3.2	2.6	6.1	5.2	6.8
Lee	130	—	—	—	—	3.2	8.4
Madison	105	—	—	—	—	10.5	8.1
Marion	37	—	—	9.5	7.0	28.6	34.6
Monroe	94	4.9	3.5	4.4	6.2	13.9	21.8
Pike	45	—	—	.4	.2	9.8	10.4
Walker	163	—	—	—	—	8.3	4.0

Monroe County Public Lake had been stocked with white catfish. The catfish catch was only 3.5 pounds per acre (Table 3). It would appear that the low catch from this lake could be related to the low catchability rate of white catfish. In addition a study now underway at Monroe County Public Lake indicated that the white catfish appear to leave the lake via the spillway during periods of heavy outflow. This also could have been a factor in the low harvest.

#### *1972-73 Season*

During the 1972-73 season, 10 public lakes were stocked with channel catfish. Seven of these lakes were stocked with 100 channel catfish fingerlings per acre. Chambers and Monroe County Public Lakes received only limited catfish stockings. This brought the total number of public lakes stocked with channel catfish to 13, of which 10 had received at least one stocking of 100 catfish fingerlings per acre (Table 1).

The catfish harvest during the 1972-73 season increased to 14,761 fish weighing 16,670 pounds. Barbour County Public Lake had a high catfish harvest of 5,794 pounds. Since this lake was stocked at a much higher rate and the catfish were supplementally fed, a high catch was expected. In addition, the lake received heavy initial fishing pressure due to reopening. Excluding the harvest from Barbour County Public Lake, 9,357 catfish weighing 10,876 pounds were taken from the other 12 public fishing lakes (Table 2).

Dallas County Public Lake had the second highest catfish harvest. A total of 3,454 catfish weighing 5,444 pounds were harvested in a 4 month period after opening in June (Table 2). This represented a catch of 54.4 pounds per acre (Table 3). The channel catfish averaged 1.6 pounds after one fishing season. Earlier studies had shown that catfish could be expected to average 1.41 pounds 1 year after stocking in a new pond (Crance and McBay, 1966). The excellent growth of the catfish in Dallas County Public Lake was the result of their introduction into an expanding fish population and the high fertility of this particular lake. The high harvest was the result of the initial heavy fishing pressure after the lake was reopened.

Fayette County Public Lake had a harvest of 1,670 catfish weighing 1,565 pounds (Table 2). The catfish were still slightly less than a pound in average size. This tends to indicate that part of the harvest was made up of the fingerlings stocked the previous fall. The catfish harvest dropped only slightly from 28.6 pounds per acre for the 1971-72 season to 26.0 pounds per acre for the 1972-73 season (Table 3).

The catfish harvest was relatively low in the other 10 public lakes and ranged from .2 pounds per acre to 9.3 pounds per acre. The extremely low catch of .2 pounds per acre was in Pike County Public Lake (Table 3). This lake contained a large population of largemouth bass and the low catch appeared to be the result of a very low survival of the catfish fingerlings due to bass predation. The relatively low harvest in the other lakes corresponds to earlier work in which the average harvest of channel catfish during the first year of fishing was found to be only 2.2 pounds per acre (Crance and McBay, 1966).

It appeared at this time that channel catfish were not adding significantly to the overall catch in the majority of the public lakes. However, the catfish stockings were well received by the fishermen and increased interest in the catfish was generated by these stockings.

#### *1973-74 Season*

During the 1973-74 season, 13 public lakes were stocked with channel catfish. This brought the total to 16 public lakes which had been stocked with channel catfish (Table 1). Dale and Lee County Public Lakes were stocked with adult fish only. All other 14 public lakes had received at least one stocking of approximately 100 channel catfish per acre. Due to availability, channel catfish had been stocked at varying rates throughout the period in an effort to maintain approximately 100 catfish per acre in the lakes.

The total catfish harvest during this period increased to 23,230 catfish weighing 44,174 pounds. Excluding the harvest from Barbour County Public Lake, 19,691 catfish weighing 26,560 pounds were harvested from the other 15 public lakes (Table 2).

The catfish catch ranged from 4.0 pounds per acre to 234.9 pounds per acre in all the lakes. Excluding Barbour, Dale, and Lee County Public Lakes, the catch in the lakes stocked with at least one stocking of 100 catfish fingerlings per acre ranged from 4.0 pounds per acre to 57.5 pounds per acre (Table 3).

Even with the limited stockings, Dale County Public Lake had a significant catch of 19.6 pounds per acre. However, the number caught was small since the catfish in Dale County Public Lake were more than 4 pounds in average size at the end of the 1973-74 season.

Of the 13 public lakes which had received at least one stocking of 100 catfish fingerlings per acre, 9 had relatively good catches ranging from 12.0 to 57.2 pounds per acre (Table 3). Madison and Walker County Public Lakes both had low harvests, however, this could be expected since the catfish had been stocked only one season. Lamar and Pike County Lakes contained large populations of largemouth bass and the low catfish harvest from these two lakes was probably the result of heavy catfish predation by the bass.

The catfish catch per acre increased in 11 of the 13 public lakes in which catfish had been stocked for 2 years or more. The only decreases were in Dallas and Fayette County Public Lakes. The decrease in Dallas County Public Lake appeared to be the result of the heavy initial fishing pressure which reduced the catfish population by more than  $\frac{1}{3}$  after the first fishing season. The decreases in catch per acre in Fayette County Public Lake represented only a slight drop from 26.0 pounds per acre to 24.8 pounds per acre (Table 3).

The catfish harvest was generally low during the first season after the catfish were stocked, however, it increased the second season. The catfish were large enough to create interest by the second season and fishermen began fishing more heavily for them. As expected, the catch in weight increased at a higher rate than the number following the first year (Figure 1). This demonstrates that the individuals left unharvested tend to grow exceedingly well. These larger individuals also tend to create much interest among fishermen.

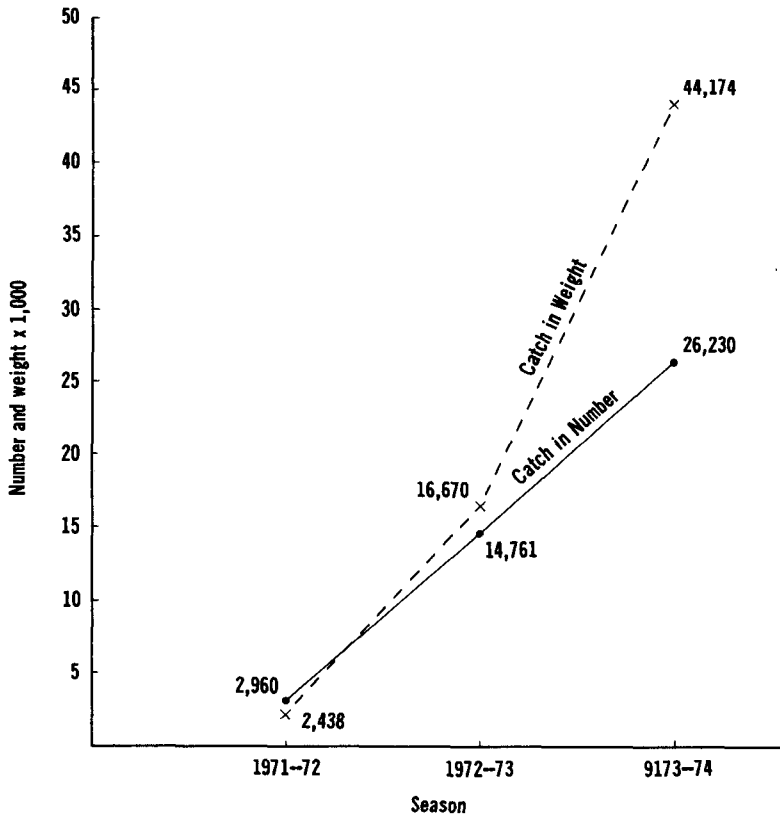
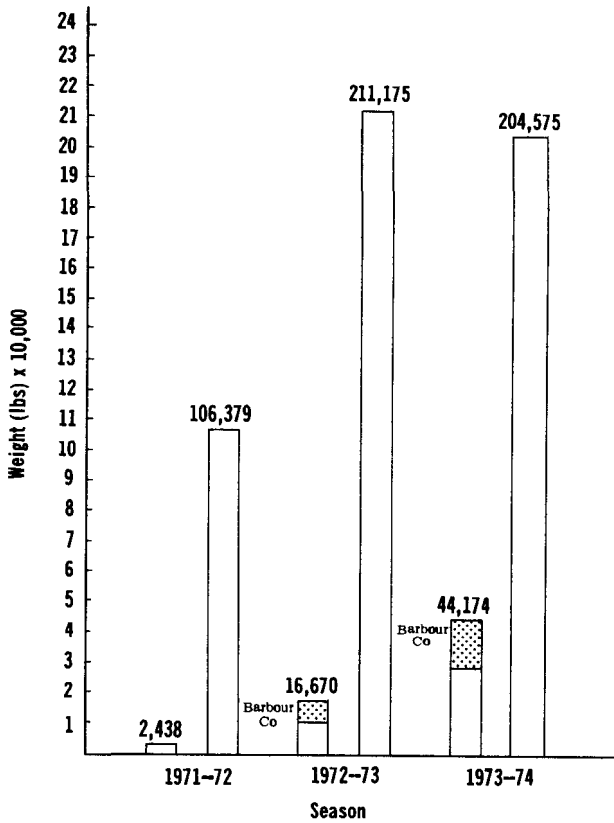


Figure 1. Catfish catch in Alabama's public fishing lakes for October 1, 1971 through September 30, 1974



**Figure 2. Comparison of Catfish catch to total catch in weight in Alabama's public fishing lakes from October 1, 1971 through September 30, 1974**

Although the catfish harvest was not significant in the 1971-72 season, it had increased considerably by the 1973-74 season (Figure 2). This increase appeared to be brought about by the increased stocking of catfish, and the resulting increased pressure for catfish.

There was doubt concerning the need for restocking the catfish each year since there was a possibility of natural recruitment. This was indicated by reports of channel catfish being caught which were smaller than the original stocked fish. In addition, fingerling catfish were also picked up in seining checks in two lakes which were smaller than the stocked fish. However, there did not appear to be sufficient recruitment to justify discontinuing the annual catfish stockings.

The white catfish does not appear to contribute as much to the catch as the channel catfish. In Monroe County Public Lake the catch was relatively low the first two seasons when white catfish made up the the majority of the catfish population (Table 3). Since the white catfish were not counted separately from the channel catfish in catch records, the success in other lakes could not be determined. However, based on the catch at Monroe County Public Lake, it would appear that the white catfish do not contribute as much to the catch as the channel catfish.

Although the stocking of channel catfish at 100 fingerlings per acre in Alabama's public fishing lakes has met with success, there are still problems which need to be studied. The loss of catfish over the spillways of the public lakes is presently being investigated. It may show that a significant number of catfish leave the lake during the first season after stocking. This could significantly influence the first

season's harvest. It also appears that while 6 to 8 inch catfish fingerlings are large enough to stock in normal bass-bluegill populations, it may be necessary to stock larger fingerlings to insure their survival when a good bass population exists. However, it is evident that channel catfish can contribute significantly to the catch and serve as an additional sport fish in Alabama's public fishing lakes.

### CONCLUSIONS

1. The initial stocking of 100 channel catfish fingerlings per acre in addition to the normal stocking rate of bass, bluegill, and redear in a renovated lake resulted in an initially high catch of the catfish after the first fishing season.
2. The stocking of 100 channel catfish fingerlings per acre in an established bass-bluegill-redear population generally resulted in a low catch during the first fishing season after stocking with an increase during the second season.
3. The increase in the harvest the second season appears to be related to the larger average size of catfish and the subsequent increased fishing pressure for the catfish.
4. The stocking of 100 channel catfish fingerlings per acre in a crowded bass population resulted in a much lower harvest of the channel catfish.
5. White catfish do not appear to be as beneficial in increasing the catch as channel catfish.
6. The channel catfish were well received by the fishing public and contributed significantly to the overall catch in Alabama's state-owned and managed public fishing lakes.

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