

eggs and having the appearance of being ripe will be thick back past the pelvics and almost to the genital orifice.

We agree with the report of Sneed and Clemens on the type of males needed for spawning. We prefer, and whenever possible, choose a male slightly larger than the female and with a wide well-muscled head. Brood males were divided between two ponds, having completed a spawn they were released back into the pond for a rest of a week to ten days. After such time they could be used with good success for the second spawn. We found that by allowing the female to be in the aquarium or pen two to three hours previous to the introduction of the male their fighting was greatly reduced. As the time for spawning drew near the female was just as active as her mate in the cleaning of the spawning area and in most cases she would do the final cleaning. Another observation made possible by the use of the aquaria was being able to see the release of the sperm. Five pair were watched during the process revealing the fact that the sperm is released immediately preceding the laying of the eggs. Only approximately one-third of the females ever wrapped their tail around the male during the act of spawning and no sudden lunge on the part of the female at the finish of spawning was noticed. Movies taken during spawning at the hatchery will present same.

The use of mechanical troughs for hatching is a great asset. First, there is less chance of eggs being destroyed, mainly in pens, and second, it gave an opportunity to handle more breeding stock with less equipment. The length of spawning season is governed by several factors thus the need of speeding up the process. We found it necessary for someone to be on duty twenty-four hours a day during this time due to the variation of spawns. The length of time to complete a spawn ranged from six to twelve hours, and as the male takes over the care of the spawn the female must be removed within the hour or he will start fighting her and the eggs will be destroyed. At no time did we have a female that would make an effort to eat the eggs after the spawn was complete.

The feed used throughout our program is Darco Fish Formula No. 1. This feed is manufactured by Darragh Milling Company, Little Rock, Ark. It carries 38% protein, 5% fat and 5% fiber. Of the 38% protein slightly over 75% is animal. It also carries terramycin and nf-180 antibiotics and rather heavy on vitamins A and B12. We are having good results by feeding approximately 2% of body weight six days a week or the amount they will consume in fifteen to twenty minutes. However, we feel that further research needs to be made on the feeding program.

TWO YEARS OF CREEL CENSUS ON THREE NORTH MISSISSIPPI FLOOD CONTROL RESERVOIRS

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ABSTRACT

The extent of the fishing pressure, harvest and fishing success on Sardis, Enid and Grenada Reservoirs, in north-central Mississippi, was undetermined in recent years. A creel census program was initiated June 15, 1958, to provide this information.

Grenada Reservoir received an estimated fishing pressure of 300,271 hours in 1958-1959 and 296,746 hours in 1959-1960. Sardis received an estimated 242,719 hours in 1958-1959 and 227,414 hours in 1959-1960. Enid received an estimated 147,605 hours in 1958-1959 and 96,297 in 1959-1960.

The catch per hour of effort on Grenada for the two years was 1.40 and 0.95, respectively, on Sardis it was 0.99 and 0.80 fish, and on Enid it was 0.82 and 1.00 fish per hour, respectively.

The percent of fishermen making a successful trip on Grenada was 91.98 percent in 1958-1959 and 90.09 percent in 1959-1960, on Sardis it was 92.76

percent and 90.74 percent, and on Enid it was 88.96 percent and 92.97 percent, respectively.

INTRODUCTION

In North Central Mississippi there are three flood control reservoirs with a combined total of 151,100 surface acres at flood control pool. These three reservoirs provide the fishermen in the vicinity a vast area in which they may pursue their favorite sport. The extent of the fishing pressure, total harvest and fishing success was undetermined in the last few years. This creel census program was initiated June 15, 1958, in order to provide this needed information. This report covers a two-year period from July 1, 1958 to June 30, 1960.

DESCRIPTION OF THE RESERVOIRS

Sardis, Enid and Grenada are three of four major reservoirs located in North Mississippi as part of a plan for flood control of the Yazoo River Basin.

Sardis Reservoir dam is located on the Little Tallahatchie River about eleven miles northeast of Batesville, Mississippi, and eight miles east of Sardis, Mississippi. The flood control pool (elev. 281.5 ft. M.S.L.) contains 58,500 surface acres with a drainage area of 1,545 square miles. There are 370 miles of shore line in the flood control pool. The conservation pool (elev. 234.5 ft. M.S.L.) was cleared of all timber and contains 9,800 surface acres. Sardis Reservoir was placed in operation in October, 1940.

Enid Reservoir dam is located on the Yocona River about 19 miles southeast of Batesville, Mississippi. The flood control pool (elev. 268.0 ft. M.S.L.) contains 28,000 surface acres with a drainage area of 560 square miles. There are 220 miles of shore line in the flood control pool. The conservation pool (elev. 230.0 ft. M.S.L.) was cleared of all timber and contains 6,100 surface acres. Enid Reservoir was placed in operation in December, 1952.

Grenada Reservoir dam is located on the Yalobusha River about three miles northeast of Grenada, Mississippi. The lake is "Y" shaped as the confluence of the Skuna River and the Yalobusha River is approximately one mile above the dam. The flood control pool (elev. 231.0 ft. M.S.L.) contains 64,000 surface acres, with a drainage area of 1,320 square miles. The conservation pool (elev. 193.0 ft. M.S.L.) was cleared of all timber and contains 9,800 surface acres. Grenada Reservoir was placed in operation in January, 1954.

METHODS

The Reservoirs were divided into the dam and the headwater area to help provide a more uniform sampling of the entire reservoir. The sampling area did not include the tailwater area. Due to two major rivers joining near the dam on Grenada it was necessary to divide Grenada into the dam and two headwater areas.

It was decided that each reservoir would be sampled two days each week. The weeks, days of the week, and area to be sampled were drawn at random for a year's period.

Two creel census clerks were used to sample the three reservoirs. One creel clerk was assigned Sardis exclusively and the other clerk was assigned Grenada exclusively. Each clerk would make two checks on his assigned lake and the two would split the sampling on Enid. In case all three of the reservoirs were scheduled for a check on the same date, the assistant project leader or the project leader would sample Enid. The clerks aided in other project jobs as their schedules permitted.

Each clerk was provided with a vehicle, a 14-ft. boat and trailer and a 10-HP. outboard motor. The creel clerk personally contacted as many parties as possible within the designated area. The fish were separated by species, counted and their weight estimated. The creel census clerks had considerable experience weighing large numbers of fish during population studies and tagging operations, therefore, they are capable of making fairly accurate estimates of the weights of the different species taken by the fishermen. This, along with other desired information such as the number in party, hours fished, type of tackle, bait and license, etc., was recorded on a 3½ x 7½ inch McBee Keysort Card. The information from each party was recorded on a separate card. At the end of each week all completed cards were turned into the project office where they

were checked, punched and filed. The data from the cards were compiled at the end of the month.

The daily boat rentals on each Reservoir were supplied monthly by the Vicksburg District, U. S. Corps of Engineers. Aerial checks were flown once a week by project personnel on all three of the Reservoirs on days drawn at random. Aerial checks were decided upon as the best method to furnish a boat to bank fisherman ratio. This was selected due to the large area to be covered by the creel clerks, the difficulty in finding the bank fishermen in many of the areas, and the large expanse of the standing timber in the headwater areas.

The creel census data were compiled monthly and an estimate of the total harvest made for each reservoir using the method outlined in Table XXXIV.

SARDIS

The creel census clerk on Sardis Reservoir contacted 3,092 fishermen from July 1, 1958 to June 30, 1959, and 2,475 fishermen from July 1, 1959 to June 30, 1960. In 1958-1959, 79.20 percent of the fishermen contacted were males as compared to 74.18 percent in 1959-1960. The number and percent of men, women, and children checked appears in Table I.

TABLE I
NUMBER AND PERCENT OF MEN, WOMEN AND CHILDREN CHECKED BY THE
CREEL CENSUS CLERK ON SARDIS RESERVOIR FOR 1958-1959

	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Men	2,449	79.20	1,836	74.18
Women	562	18.18	519	20.97
Children	81	2.62	120	4.85
TOTAL	3,092	100.00	2,475	100.00

There were 2,752 (89.00 percent) boat fishermen checked on Sardis in 1958-1959, and 1,967 (79.47 percent of the total) in 1959-1960. The average number of people per boat varied only slightly for the two years. In 1958-1959, there was an average of 2.01 fishermen per boat and 1.98 fishermen per boat in 1959-1960. The number of boats, people and people per boat checked in the two years appears in Table II.

TABLE II
NUMBER OF RENTED AND PRIVATE BOATS, NUMBER OF FISHERMEN USING EACH
AND THE AVERAGE NUMBER PER BOAT CHECKED BY THE CREEL CENSUS
CLERK ON SARDIS RESERVOIR FOR 1958-1959

	1958-1959			1959-1960		
	No. Boats	No. People	People/Boat	No. Boats	No. People	People/Boat
Rented	995	1,971	1.98	669	1,316	1.97
Private	373	781	2.09	325	651	2.00
TOTAL	1,368	2,752	2.01	994	1,967	1.98

Creel census checks on Sardis Reservoir in 1958-1959, revealed that 42.82 percent of the fishermen contacted were non-residents. In 1959-1960, 53.57 percent of the fishermen checked possessed non-resident license. This was an increase of 10.75 percent over the percent checked in 1958-1959. The group that did not have a license were persons fishing in the county of their residence or fishing illegally. Children and residents over 65 are not required to have a license. In Table III the license data is presented.

Fishing success was based on completed trips. A successful trip was one where one or more fish were caught. In 1958-1959, 395 parties had completed fishing for the day when contacted, with 333 (92.76 percent) having a successful trip. In 1959-1960, of the 540 parties contacted at the end of their trip, 490 (90.74 percent) were successful. The fishing success was down 2.02 percent in 1959-1960 from that of 1958-1959.

TABLE III
NUMBER AND PERCENT OF EACH TYPE OF LICENSE CHECKED BY THE
CREEL CENSUS CLERK ON SARDIS RESERVOIR FROM 1958-1960

Type License	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Combination Hunt and Fish..	876	28.33	460	18.59
Fishing	491	15.88	313	12.65
Non-Resident 3-Day Trip	297	9.61	311	12.56
Non-Resident Annual	1,027	33.21	1,015	41.01
No License	234	7.57	186	7.51
Children	81	2.62	120	4.85
Over 65	86	2.78	70	2.83
TOTAL	3,092	100.00	2,475	100.00

Natural baits were used by more of the fishermen than any other type during the period. Those using artificial baits comprised 3.36 percent of the total in 1958-1959 and 1.37 percent in 1959-1960. Unclassified bait users were designated as those using both natural and artificial baits. The number and percent of the fishermen using the various types of bait appear in Table IV.

TABLE IV
NUMBER AND PERCENT OF FISHERMEN USING EACH TYPE OF BAIT AS CHECKED
BY THE CREEL CENSUS CLERK ON SARVIS RESERVOIR FOR 1958-1960

Type License	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Natural	2,978	96.32	2,413	97.50
Artificial	104	3.36	34	1.37
Unclassified	10	0.32	28	1.13
TOTAL	3,092	100.00	2,475	100.00

The creel census data on the boat and bank fishermen was separated and appears in Tables V, VI, VII and VIII. The greatest number of boat fishermen contacted during any given month in 1958-1959, was 831 fishermen in April, 1959. In 1959-1960, 573 fishermen were contacted in May of 1960. August, 1959, was the only month in either 1958-1959, or 1959-1960, that more bank than boat fishermen were checked.

The catch per hour of effort for the boat fishermen in 1958-1959 ranged from 0.04 to 1.38 fish per hour, while the bank fishermen's catch ranged from 0.19 to 1.21 fish per hour. In 1959-1960, the boat fishermen's catch ranged from 0.12 to 1.48 fish per hour and the bank fishermen's catch ranged from 0.00 to 0.67 fish per hour of effort.

There were only two months in 1958-1959 that the boat fishermen's catch was below 0.50 fish per hour of effort. There were seven months in 1959-1960 that the same group was below 0.50 fish per hour. The bank fishermen in 1958-1959 had six months that the catch was below 0.50 fish per hour while in 1959-1960 the same group had eight months in which the catch was below 0.50 fish per hour of effort.

The average length of a completed trip for the boat fishermen on Sardis Reservoir varied from 2.00 to 7.59 hours in 1958-1959 and from 3.44 to 7.14 hours in 1959-1960. The creel census clerk did not check any bank fishermen completing their fishing trip during six months in 1958-1959 and two months in 1959-1960. The average length of completed trips for the bank fishermen in 1958-1959 ranged from 2.00 to 5.12 hours and from 0.75 to 4.96 hours in 1959-1960.

The boat fishermen on Sardis in 1958-1959 averaged catching two or more pounds of fish per trip during six of the months, and eight months in 1959-1960. The bank fishermen averaged catching two or more pounds of fish per trip during two months of 1958-1959 and in no month of 1959-1960. In Tables V, VI, VII and VIII this data is presented.

TABLE V

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BOAT FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON SARDIS RESERVOIR FOR 1958-1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	94	187	60	440	205	40	9	121	282	831	267	216
Hours Fished	338.25	645.50	169.50	1770.50	894.00	115.00	27.00	524.50	1099.50	4340.00	1139.50	617.50
Number of Fish Caught	299	510	100	1652	787	36	1	722	1427	4367	1252	404
Pounds of Fish Caught	134.7	321.7	63.0	947.1	394.6	18.7	6.0	481.3	835	3331.5	723.1	199.0
Number of Fish Per Hour	0.88	0.79	0.59	0.93	0.88	0.31	0.04	1.38	1.30	1.01	1.10	0.65
Pounds of Fish Per Hour	0.40	0.50	0.37	0.54	0.44	0.16	0.22	0.92	0.76	0.77	0.63	0.32
Avg. Length of Completed Trip	4.00	4.67	2.67	5.48	7.59	2.00	*	4.77	5.24	6.24	5.93	4.40
Number of Fish Per Trip	3.52	3.69	1.58	5.10	6.68	0.62	0.08	6.58	6.81	6.30	6.52	2.86
Pounds of Fish Per Trip	1.60	2.34	0.99	2.96	3.34	0.32	0.44	4.39	3.98	4.80	3.74	1.41

* No completed trips checked by creel census clerk, used December 1958, average trip.

TABLE VI

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BOAT FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON SARDIS RESERVOIR FOR 1959-1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	129	32	129	92	29	5	14	12	47	399	573	506
Hours Fished	630.75	99.50	559.00	812.50	130.75	24.50	43.25	40.25	155.75	2065.50	2861.50	3027.00
Number of Fish Caught	355	75	262	198	177	25	64	5	55	1384	3814	4117
Pounds of Fish Caught	210.3	44.9	161.3	98.2	100.0	13.0	35.5	3.0	38.6	915.8	2090.3	2416.3
Number of Fish Per Hour	0.56	0.75	0.47	0.24	1.35	1.02	1.48	0.12	0.35	0.67	1.33	1.36
Pounds of Fish Per Hour	0.33	0.45	0.29	0.12	0.75	0.53	0.82	0.07	0.25	0.44	0.73	0.80
Avg. Length of Completed Trip	6.13	5.70	6.54	5.50	5.56	5.38	3.44	3.81	3.91	6.96	6.28	7.14
Number of Fish Per Trip	3.43	4.28	3.07	1.32	7.51	5.49	5.09	0.46	1.37	4.66	8.35	9.71
Pounds of Fish Per Trip	2.02	2.57	1.90	0.66	4.17	2.85	2.82	0.27	0.98	3.06	4.58	5.71

TABLE VII

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BANK FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON SARDIS RESERVOIR FOR 1958-1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	7	29	19	16	6	6	2	9	48	94	89	15
Hours Fished	5.25	37.50	33.00	23.50	9.00	6.50	2.00	16.50	90.50	245.50	235.50	35.0
Number of Fish Caught	1	14	17	28	4			6	109	297	234	31
Pounds of Fish Caught	1.0	9.5	18.8	13.2	5.5			2.6	29.9	189.7	109.1	15.7
Number of Fish Per Hour	0.19	0.37	0.51	1.19	0.44			0.36	1.20	1.21	0.99	0.89
Pounds of Fish Per Hour	0.19	0.25	0.57	0.56	0.61			0.16	0.33	0.77	0.46	0.45
Avg. Length of Completed Trip			3.00					2.00	2.83	3.08	5.12	2.25
Number of Fish Per Trip			1.53					0.72	3.40	3.73	5.07	2.00
Pounds of Fish Per Trip			1.71					0.32	0.93	2.37	2.36	1.01

TABLE VIII

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BANK FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON SARDIS RESERVOIR FOR 1959-1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	103	61	33	12	*	*	2	5	31	219	36	6
Hours Fished	287.25	162.75	68.25	34.50	*	*	5.00	6.00	68.50	536.50	81.50	7.25
Number of Fish Caught	95	63	46	5	*	*	3	0	6	359	24	4
Pounds of Fish Caught	61.2	38.6	21.6	2.2	*	*	1.0	0.0	3.3	212.4	13.2	3.0
Number of Fish Per Hour	0.33	0.39	0.67	0.14	*	*	0.60	0.00	0.09	0.67	0.29	0.55
Pounds of Fish Per Hour	0.21	0.24	0.32	0.06	*	*	0.20	0.00	0.05	0.40	0.16	0.41
Avg. Length of Completed Trip	4.96	2.63	3.64	4.14	*	*	2.50	0.75	3.15	3.05	2.46	1.75
Number of Fish Per Trip	1.64	1.03	2.44	0.58	*	*	1.50	0.00	0.28	2.04	0.71	0.96
Pounds of Fish Per Trip	1.04	0.63	1.16	0.25	*	*	0.50	0.00	0.16	1.22	0.39	0.72

* No Bank Fishermen Checked.

On Sardis Reservoir crappie comprised the largest percentage of the catch in both 1958-1959 and 1959-1960. The percentage of crappie was 6.83 percent higher in 1959-1960 than in 1958-1959. The percentage of bass and bluegill decreased in 1959-1960 from that of 1958-1959. Flatheads, bullheads, and bowfins were absent from the stringers in 1958-1959 and only several appeared in the 1959-1960 catches. The number and percentage of each species, checked by the creel census clerk in 1958-1959 and 1959-1960, appears in Table IX.

TABLE IX
THE NUMBER AND PERCENT COMPOSITION OF EACH SPECIES AS CHECKED BY THE
CREEL CENSUS CLERK ON SARDIS RESERVOIR FOR 1958-1959

Species	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Largemouth and Spotted Bass	777	6.32	436	3.91
White and Black Crappie . . .	10,310	83.83	10,097	90.66
Bluegill	571	4.64	139	1.25
Warmouth	89	0.72	1	0.01
Drum	56	0.46	53	0.48
Carp	3	0.02	2	0.02
Channel Catfish	442	3.59	389	3.49
Blue Catfish	51	0.42	11	0.10
Flathead . . . . .	..	..	2	0.02
Bullhead . . . . .	..	..	4	0.04
Bowfin . . . . .	..	..	2	0.02
TOTAL	12,299	100.00	11,136	100.00

On Sardis Reservoir from July 1, 1958 through June 30, 1959, it was estimated that 47,273 fishermen fished 242,719 hours and caught 240,531 fish that weighed 152,050 pounds. The average annual catch per hour of effort was 0.99 fish and 0.63 pounds. (Table X.)

From July 1, 1959 through June 30, 1960, on Sardis Reservoir it was estimated that 40,851 fishermen fished 227,414 hours and caught 182,695 fish that weighed 110,152 pounds. The average annual catch per hour of effort was 0.80 fish and 0.48 pounds. (Table XI.)

When the 1958-1959 estimated fishing pressure was broken down into months it revealed that 34.82 percent of the years fishing pressure in hours occurred in April. The combined months of April, May and June received 49.98 percent of the estimated total year's fishing pressure and December, January and February combined received only 4.40 percent. In 1959-1960, April received 50.63 percent of the estimated total year's fishing pressure. April, May and June combined received 76.76 percent of the fishing pressure for the year and December, January and February received only 0.88 percent.

TABLE X

THE ESTIMATED NUMBER OF FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, AND CATCH PER HOUR OF EFFORT ON SARDIS RESERVOIR FROM JULY 1, 1958 TO JUNE 30, 1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Totals
Fishermen	2,941	3,063	1,588	5,761	2,814	773	1,522	1,334	5,586	15,147	5,121	1,623	47,273
Hours Fished	11,624	13,992	4,279	31,429	21,293	1,566	3,044	6,067	28,126	84,519	29,897	6,883	242,719
Number of Fish Caught	9,939	10,819	2,533	29,291	18,402	467	114	8,155	36,429	87,295	32,549	4,538	240,531
Pounds of Fish Caught	4,563	6,871	1,658	16,981	9,286	241	630	5,418	20,798	65,017	18,350	2,237	152,050
No. of Fish Per Hour	0.86	0.78	0.59	0.93	0.86	0.30	0.04	1.34	1.29	1.03	1.09	0.66	0.99
Pounds of Fish Per Hour	0.39	0.49	0.39	0.54	0.44	0.15	0.21	0.89	0.74	0.77	0.61	0.33	0.63

TABLE XI

THE ESTIMATED NUMBER OF FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, AND CATCH PER HOUR OF EFFORT ON SARDIS RESERVOIR FROM JULY 1, 1959 TO JUNE 30, 1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Totals
Fishermen	1,534	1,557	1,807	1,273	991	280	86	82	3,620	20,167	4,958	4,496	40,851
Hours Fished	8,953	7,371	10,179	6,926	5,434	1,506	294	242	11,953	115,143	29,829	29,584	227,414
Number of Fish Caught	4,571	5,072	5,197	1,637	7,075	1,537	430	27	1,803	76,988	38,787	39,571	182,695
Pounds of Fish Caught	2,722	3,050	3,020	817	3,924	798	238	16	1,173	49,779	21,273	23,342	110,152
No. of Fish Per Hour	0.51	0.69	0.51	0.24	1.30	1.02	1.46	0.11	0.15	0.67	1.30	1.34	0.80
Pounds of Fish Per Hour	0.30	0.41	0.30	0.12	0.72	0.53	0.81	0.07	0.10	0.43	0.71	0.79	0.48

ENID

The creel census clerks on Enid Reservoir contacted 2,002 fishermen from July 1, 1958 to June 30, 1959, and 1,501 fishermen from July 1, 1959 to June 30, 1960. In 1958-1959, 77.92 percent of the fishermen contacted were males as compared to 73.75 percent males contacted in 1959-1960. The number and percent of men, women and children checked appears in Table XII.

TABLE XII
NUMBER AND PERCENT OF MEN, WOMEN AND CHILDREN CHECKED BY THE
CREEL CENSUS CLERKS ON ENID RESERVOIR FOR 1958-1960

	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Men	1,560	77.92	1,107	73.75
Women	361	18.03	322	21.45
Children	81	4.05	72	4.80
TOTAL	2,002	100.00	1,501	100.00

There were 1,628 (81.32 percent) boat fishermen checked on Enid in 1958-1959 and 1,158 (77.15 percent of the total) in 1959-1960. In 1958-1959, there was an average of 1.93 fishermen per boat and 1.99 in 1959-1960. The number of boats, people and people per boat checked in two years appears in Table XIII.

TABLE XIII
NUMBER OF RENTED AND PRIVATE BOATS, NUMBER OF FISHERMEN USING EACH
BOAT AND THE AVERAGE NUMBER PER BOAT CHECKED BY THE CREEL CLERKS
ON ENID RESERVOIR FOR 1958-1960

	1958-1959			1959-1960		
	No. Boats	No. People	People/ Boat	No. Boats	No. People	People/ Boat
Rented	462	892	1.93	385	768	1.99
Private	383	736	1.92	197	390	1.98
TOTAL	845	1,628	1.93	582	1,158	1.99

Creel census checks on Enid Reservoir in 1958-1959, revealed that 33.32 percent of the fishermen contacted were non-residents. In 1959-1960, 50.77 percent of the fishermen checked possessed a non-resident license. This was an increase of 17.45 percent over the percent checked in 1958-1959. The group that did not have a license were persons fishing in the county of their residence or fishing illegally. Children and residents over 65 are not required to have a license. In Table XIV the license data is presented.

TABLE XIV
NUMBER AND PERCENT OF EACH TYPE OF LICENSE CHECKED BY THE
CENSUS CLERKS ON ENID RESERVOIR FOR 1958-1960

Type License	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Combination Hunt and Fish..	548	27.37	274	18.25
Fishing	333	16.63	170	11.33
Non-Resident 3-Day Trip....	196	9.79	205	13.66
Non-Resident Annual	471	23.53	557	37.11
No License	298	14.88	162	10.79
Children	81	4.05	72	4.80
Over 65	75	3.75	61	4.06
TOTAL	2,002	100.00	1,501	100.00

Fishing success was based on completed trips. A successful trip was one where one or more fish was caught. In 1958-1959, 335 parties had completed fishing for the day when contacted, with 298 (88.96 percent) having a successful trip. In 1959-1960, of the 327 parties contacted at the end of their trip, 307 (92.97 percent) were successful. The fishing success was up 4.01 percent in 1959-1960 from that of 1958-1959.

Natural baits were used by more of the fishermen than any other type during the period. Those using artificial baits comprised 4.20 percent of the total in 1958-1959, and 2.47 percent in 1959-1960. Unclassified bait users were designated as those using both natural and artificial baits. The number and percent of the fishermen using the various types of baits appear in Table XV.

TABLE XV
NUMBER AND PERCENT OF FISHERMEN USING EACH TYPE OF BAIT AS CHECKED BY THE CREEL CENSUS CLERK ON ENID RESERVOIR FOR 1958-1960

	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Natural	1,896	94.70	1,455	96.93
Artificial	84	4.20	37	2.47
Unclassified	22	1.10	9	0.60
TOTAL	2,002	100.00	1,501	100.00

The creel census data on the boat and bank fishermen was separated and appears in Tables XVI, XVII, XVIII and XIX. The greatest number of boat fishermen contacted during any given month in 1958-1959, was 343 fishermen in May, 1959. In 1959-1960, 295 fishermen were contacted in April, 1960. February of 1959 and 1960, were the only two months during the two years that more bank fishermen than boat fishermen were checked.

The catch per hour of effort for the boat fisherman in 1958-1959, ranged from 0.34 to 1.18 fish per hour, while the bank fisherman's catch ranged from 0.15 to 1.23 fish. In 1959-1960, the boat fishermen's catch ranged from 0.25 to 2.14 fish per hour and the bank fishermen's catch ranged from 0.18 to 1.07 fish.

There was only one month in 1958-1959 that the boat fisherman's catch was below 0.50 fish per hour of effort. There were two months in 1959-1960 that the same group's catch was below 0.50 fish per hour. The bank fishermen in 1958-1959 had three months in which the catch was below 0.50 fish per hour, while in 1959-1960 the same group had five months in which the catch was below 0.50 fish per hour of effort.

The average length of a completed trip for the boat fishermen on Enid Reservoir varied from 3.28 to 6.49 hours in 1958-1959, and from 2.42 to 7.07 hours in 1959-1960. The creel clerk did not check any completed trips on the boat fishermen in October, 1958, or January of 1959 or 1960. In 1958-1959, the clerk did not check any completed trips during seven of the months, and one month in 1959-1960. The five months of 1958-1959 in which completed trips were checked ranged from 2.89 to 5.00 hours and in 1959-1960 they ranged from 1.25 to 6.75 hours.

The boat fishermen on Enid in 1958-1959 averaged catching two or more pounds of fish per trip during nine of the months, and also during nine of the months in 1959-1960. The bank fishermen averaged catching two or more pounds of fish per trip during only one month of 1958-1959, and during two months of 1959-1960. In Tables XVI, XVII, XVIII and XIX this data is presented.

TABLE XVI

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BOAT FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON END RESERVOIR FOR 1958-1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	131	322	55	49	131	10	2	20	137	321	343	107
Hours Fished	479.75	1336.25	147.25	109.75	431.00	47.00	2.00	87.25	644.75	1736.75	1780.00	415.00
Number of Fish Caught	340	1103	50	126	496	33	..	103	722	1555	1790	398
Pounds of Fish Caught	336.4	942.2	46.0	111.9	346.1	19.5	..	73.8	427.0	1090.5	1325.0	273.9
Number of Fish Per Hour	0.71	0.83	0.34	1.15	1.15	0.70	..	1.18	1.12	0.90	1.01	0.96
Pounds of Fish Per Hour	0.70	0.71	0.33	1.02	0.80	0.41	..	0.85	0.66	0.63	0.74	0.66
Avg. Length of Completed Trip	4.79	5.34	3.28	*	3.43	3.75	..	3.50	5.68	6.49	5.68	5.25
Number of Fish Per Trip	3.40	4.43	1.12	2.63	3.94	3.75	..	4.13	6.36	5.84	5.74	5.04
Pounds of Fish Per Trip	3.40	3.79	1.08	3.35	2.74	1.54	..	2.98	3.75	4.09	4.20	3.46

* No completed trips checked by creel census clerks, used September 1958, average.

TABLE XVII

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BOAT FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON END RESERVOIR FOR 1959-1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	150	49	68	162	106	41	*	6	64	295	45	172
Hours Fished	701.75	203.75	289.25	721.50	516.50	134.75	*	14.50	197.00	1653.00	223.50	935.25
Number of Fish Caught	743	111	361	647	913	74	*	6	49	1931	478	854
Pounds of Fish Caught	437.6	93.0	246.3	405.6	586.2	52.0	*	3.0	34.0	1197.3	300.0	493.5
Number of Fish Per Hour	1.06	0.54	1.25	0.90	1.77	0.55	*	0.41	0.25	1.17	2.14	0.91
Pounds of Fish Per Hour	0.62	0.46	0.85	0.56	1.13	0.39	*	0.21	0.17	0.72	1.34	0.53
Avg. Length of Completed Trip	6.92	5.01	5.57	5.55	5.31	3.87	*	2.42	3.58	6.65	5.30	6.41
Number of Fish Per Trip	7.34	2.71	6.96	5.00	9.40	3.89	*	0.99	0.90	7.78	11.34	5.83
Pounds of Fish Per Trip	4.29	2.30	4.73	3.11	6.00	2.76	*	0.51	0.61	4.79	7.10	3.40

* No Boat Fishermen Checked.

TABLE XVIII

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BANK FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON ENTID RESERVOIR FOR 1938-1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	13	12	15	10	6	2	3	39	77	115	41	41
Hours Fished	48.50	19.50	23.50	34.00	12.50	3.25	3.50	70.25	194.50	302.50	84.50	105.50
Number of Fish Caught	25	3	13	22	3	4	..	82	117	243	47	37
Pounds of Fish Caught	21.6	4.6	5.0	24.0	1.5	5.5	..	24.9	59.7	149.2	30.5	21.8
Number of Fish Per Hour	0.52	0.15	0.55	0.65	0.24	1.23	..	1.17	0.60	0.81	0.56	0.35
Pounds of Fish Per Hour	0.45	0.24	0.21	0.71	0.12	1.67	..	0.35	0.31	0.49	0.36	0.21
Avg. Length of Completed Trip	..	..	..	3.50	..	..	..	..	5.00	2.89	4.94	4.70
Number of Fish Per Trip	..	..	..	2.28	..	..	..	..	3.00	2.34	2.77	1.64
Pounds of Fish Per Trip	..	..	..	2.49	..	..	..	..	1.55	1.42	1.78	0.99

TABLE XIX

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BANK FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON ENTID RESERVOIR FOR 1959-1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	21	31	39	41	11	2	*	9	57	100	23	9
Hours Fished	71.25	125.25	94.50	92.50	25.50	4.50	*	17.50	129.75	260.00	57.00	26.00
Number of Fish Caught	30	47	53	99	24	4	*	10	52	150	10	8
Pounds of Fish Caught	22.8	36.0	36.3	63.5	19.5	2.5	*	6.5	33.8	83.4	4.5	2.9
Number of Fish Per Hour	0.42	0.38	0.56	1.07	0.94	0.89	*	0.57	0.40	0.58	0.18	0.31
Pounds of Fish Per Hour	0.32	0.29	0.38	0.69	0.76	0.56	*	0.37	0.26	0.32	0.08	0.11
Avg. Length of Completed Trip	6.58	2.00	3.67	4.27	1.25	2.25	*	1.75	1.34	2.03	6.75	2.00
Number of Fish Per Trip	2.76	0.76	2.06	4.57	1.18	2.00	*	1.00	0.54	1.18	1.22	0.62
Pounds of Fish Per Trip	2.11	0.58	1.39	2.95	0.95	1.26	*	0.65	0.35	0.65	0.54	0.22

* No Bank Fishermen Checked.

On Enid Reservoir crappie comprised the largest percentage of the catch in both 1958-1959 and 1959-1960. The percentage of crappie increased 9.39 percent in 1959-1960. The percentage of bass decreased 7.19 percent and bluegill decreased 1.20 percent in 1959-1960 from that of 1958-1959. The number and percent of each species checked by the creel clerk in 1958-1959 and 1959-1960, appears in Table XX.

TABLE XX
THE NUMBER AND PERCENT COMPOSITION OF EACH SPECIES AS CHECKED BY THE CREEL CENSUS CLERKS ON ENID RESERVOIR FOR 1958-1960

Species	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Largemouth and Spotted Bass	945	12.92	381	5.73
White and Black Crappie	5,979	81.77	6,064	91.13
Bluegill	171	2.34	76	1.14
Warmouth	45	0.62	10	0.15
Drum	9	0.12	9	0.14
Carp	6	0.08	4	0.06
Channel Catfish	132	1.81	91	1.37
Blue Catfish	3	0.04	1	0.01
Flathead	13	0.18	2	0.03
Bullhead	8	0.11	16	0.24
Bowfin	1	0.01	...	...
TOTAL	7,312	100.00	6,654	100.00

On Enid Reservoir from July 1, 1958 through June 30, 1959, it was estimated that 32,058 fishermen fished 147,605 hours and caught 121,573 fish that weighed 88,028 pounds. The average annual catch per hour of effort was 0.82 fish and 0.60 pounds. (Table XXI.)

From July 1, 1959 through June 30, 1960, it was estimated that 18,142 fishermen fished 96,297 hours and caught 96,185 fish that weighed 59,979 pounds. The average annual catch per hour of effort was 1.00 fish and 0.62 pounds. (Table XXII.)

When the 1958-1959 estimated fishing pressure was broken down into months it revealed that 37.91 percent of the fishing pressure in hours occurred in April, 1959. The combined months of April, May and June received 76.45 percent of the estimated total year's fishing pressure, and December, January and February received only 0.14 percent. In 1959-1960, April received 28.36 percent of the estimated total year's fishing pressure. April, May and June combined received 52.62 percent of the fishing pressure for the year and December, January and February received only 0.34 percent.

TABLE XXI

THE ESTIMATED NUMBER OF FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, AND CATCH PER HOUR OF EFFORT
ON ENID RESERVOIR FROM JULY 1, 1958 TO JUNE 30, 1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Totals
Fishermen	2,973	2,730	761	565	458	12	5	59	214	13,459	6,046	4,776	32,058
Hours Fished	13,369	14,294	2,552	1,922	1,573	50	6	157	840	55,957	32,814	24,071	147,605
Number of Fish Caught	9,414	11,798	1,058	2,107	1,718	37	...	185	839	48,083	28,577	17,757	121,573
Pounds of Fish Caught	9,398	10,089	737	1,895	1,190	25	...	99	487	31,765	20,401	11,942	88,028
No. of Fish Per Hour	0.70	0.83	0.41	1.10	1.09	0.74	0.00	1.18	1.00	0.86	0.87	0.74	0.82
Pounds of Fish Per Hour	0.70	0.71	0.29	0.99	0.76	0.50	0.00	0.63	0.58	0.57	0.62	0.50	0.60

TABLE XXII

THE ESTIMATED NUMBER OF FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, AND CATCH PER HOUR OF EFFORT
ON ENID RESERVOIR FROM JULY 1, 1959 TO JUNE 30, 1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Totals
Fishermen	2,892	1,742	1,329	1,177	1,034	43	*	18	121	5,644	1,507	2,635	18,142
Hours Fished	19,744	7,271	6,445	6,180	5,324	295	*	36	327	27,308	8,898	14,469	96,297
Number of Fish Caught	17,610	3,779	6,781	5,766	9,382	163	*	18	101	29,349	10,734	12,502	96,185
Pounds of Fish Caught	10,685	3,175	4,602	3,615	5,997	115	*	11	68	17,917	6,580	7,214	59,979
No. of Fish Per Hour	0.89	0.52	1.05	0.93	1.76	0.55	*	0.50	0.31	1.07	1.21	0.86	1.00
Pounds of Fish Per Hour	0.54	0.44	0.71	0.58	1.13	0.39	*	0.31	0.21	0.66	0.74	0.50	0.62

* No Fishermen Checked.

GRENADA

The creel census clerk on Grenada Reservoir contacted 2,392 fishermen from July 1, 1958 to June 30, 1959, and 1,083 fishermen from July 1, 1959 to June 30, 1960. In 1958-1959, 70.03 percent of the fishermen contacted were males as compared to 64.88 percent in 1959-1960. The number and percent of men, women and children checked appears in Table XXIII.

TABLE XXIII
NUMBER AND PERCENT OF MEN, WOMEN AND CHILDREN CHECKED BY THE
CREEL CENSUS CLERK ON GRENADA RESERVOIR IN 1958-1960

	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Men	1,675	70.03	704	64.88
Women	584	24.41	289	26.78
Children	133	5.56	90	8.34
TOTAL	2,392	100.00	1,083	100.00

There were 1,716 (71.74 percent) boat fishermen check on Grenada in 1958-1959, and 755 (69.71 percent of the total) in 1959-1960. In separating the rented boat fishermen from the private boat fishermen it was noted that the average number of people per private boat was the same in 1958-1959, and in 1959-1960. The number of boats, people and people per boat checked in the two years appears in Table XXIV.

TABLE XXIV
NUMBER OF RENTED AND PRIVATE BOATS, NUMBER OF FISHERMEN USING EACH
AND THE AVERAGE NUMBER PER BOAT CHECKED BY THE CREEL CENSUS
CLERK ON GRENADA RESERVOIR FOR 1958-1960

	1958-1959			1959-1960		
	<i>No.</i> <i>Boats</i>	<i>No.</i> <i>People</i>	<i>People/</i> <i>Boat</i>	<i>No.</i> <i>Boats</i>	<i>No.</i> <i>People</i>	<i>People/</i> <i>Boat</i>
Rented	412	980	2.38	177	401	2.27
Private	319	736	2.31	153	354	2.31
TOTAL	731	1,716	2.35	330	755	2.29

Creel census checks on Grenada Reservoir in 1958-1959, revealed that only 3.93 percent of the fishermen contacted were non-residents. In 1959-1960, 10.53 percent of the fishermen contacted possessed a non-resident license. This was an increase of 7.60 percent over the percent checked in 1958-1959. The group that did not have a license were persons fishing in the county of their residence or fishing illegally. Children and residents over 65 are not required to have a license. In Table XXV the license data is presented.

TABLE XXV
NUMBER AND PERCENT OF EACH TYPE OF LICENSE CHECKED BY THE
CREEL CENSUS CLERK ON GRENADA RESERVOIR FOR 1958-1960

	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Combination Hunt and Fish..	862	36.04	300	27.71
Fishing	742	31.02	282	26.04
Non-Resident 3-Day Trip....	65	2.72	91	8.04
Non-Resident Annual	29	1.21	27	2.49
No License	452	18.89	134	12.37
Children	133	5.56	90	8.31
Over 65	109	4.56	159	14.68
TOTAL	2,392	100.00	1,083	100.00

Fishing success was based on completed trips. A successful trip was one where one or more fish were caught. In 1958-1959, 349 parties had completed fishing for the day when contacted, with 321 (91.98 percent) having a successful trip. In 1959-1960, of the 111 parties contacted at the end of their trip, 100 (90.09 percent) were successful. The fishing success was down 1.89 percent in 1959-1960 from that of 1958-1959.

Natural baits were used by more fishermen than any other type during the period. Those using artificial baits comprised 7.36 percent of the total in 1958-1959, and 8.31 percent in 1959-1960. Unclassified bait users were designated as those using both natural and artificial baits. The number and percent of the fishermen using the various types of bait appears in Table XXVI.

TABLE XXVI
NUMBER AND PERCENT OF FISHERMEN USING EACH TYPE OF BAIT AS CHECKED BY THE CREEL CENSUS CLERK ON GRENADA RESERVOIR FOR 1958-1960

	1958-1959		1959-1960	
	Number	Percent	Number	Percent
Natural	2,133	89.17	966	89.20
Artificial	176	7.36	90	8.31
Unclassified	83	3.47	27	2.49
TOTAL	2,392	100.00	1,083	100.00

The creel census data on the boat and bank fishermen was separated and appears in Tables XXVII, XXVIII, XXIX and XXX. The greatest number of boat fishermen contacted during any given month in 1958-1959, was 459 fishermen in August, 1958. In 1959-1960, the greatest number of fishermen checked during any one month was 160 in July, 1959. In October and December of 1958, and February of 1959, more bank fishermen were checked than boat fishermen. During four months of 1959-1960, more bank than boat fishermen were checked.

The catch per hour of effort for the boat fishermen in 1958-1959, ranged from 0.33 to 3.57 fish per hour, while the bank fishermen's catch ranged from 0.23 to 4.52 fish per hour. In 1959-1960, the boat fishermen's catch ranged from 0.26 to 2.14 fish per hour and the bank fishermen's catch ranged from 0.13 to 1.71 fish per hour.

There was only one month in 1958-1959, that the boat fishermen's catch was below 0.50 fish per hour of effort and only two months when it was below 1.00 fish per hour. There were two months in 1959-1960, that the same group's catch was below 0.50 fish per hour of effort. The bank fishermen in 1958-1959, had only one month in which the catch was below 0.50 fish per hour and six months in 1959-1960, that the same group's catch was below 0.50 fish per hour of effort.

The average length of a completed trip for the boat fisherman on Grenada ranged from 2.50 to 7.88 hours in 1958-1959, and from 3.00 to 5.86 hours in 1959-1960. The creel census clerk did not check any boat fishermen in January, 1959. The average length of completed trips for the bank fishermen ranged from 2.25 to 5.63 hours in 1958-1959, and from 2.67 to 5.50 hours in 1959-1960.

The boat fishermen on Grenada in 1958-1959, averaged catching two or more pounds of fish per trip each month except in October, 1958, and all but January and March of 1960. The bank fishermen caught two or more pounds of fish per trip during eight months of 1958-1959, and four months of 1959-1960. In Tables XXVII, XXVIII, XXIX and XXX this data is presented.

On Grenada Reservoir crappie comprised the largest percentage of the catch in both 1958-1959, and 1959-1960. The percentage of crappie decreased 3.24 percent in 1959-1960. The percentage of bass increased 9.40 percent and the bluegill decreased 10.33 percent in 1959-1960, from that of 1958-1959. The number and percentage of each species, checked by the creel clerk in 1958-1959, and 1959-1960, appears in Table XXXI.

TABLE XXVII

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BOAT FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON GRENADA RESERVOIR FOR 1958-1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	295	459	108	59	68	42	49	11	30	185	239	171
Hours Fished	1422.75	1758.50	378.00	176.25	275.25	181.25	244.00	44.25	90.00	1006.75	1684.0	927.50
Number of Fish Caught	2121	2060	364	58	391	647	673	53	103	1095	2769	1201
Pounds of Fish Caught	1651.5	1455.4	416.6	43.0	313.5	531.0	497.0	36.6	70.5	1067.0	2146.4	1026.0
Number of Fish Per Hour	1.49	1.17	0.92	0.33	1.42	3.57	2.76	1.20	1.14	1.09	1.64	1.29
Pounds of Fish Per Hour	1.16	0.83	1.10	0.24	1.14	2.93	2.04	0.83	0.78	1.06	1.27	1.11
Avg. Length of Completed Trip	5.52	5.84	3.00	2.95	4.30	5.89	4.96	2.50	3.34	6.13	7.88	5.62
Number of Fish Per Trip	8.22	6.83	2.76	0.97	6.11	21.03	13.69	3.00	4.11	6.68	12.92	7.25
Pounds of Fish Per Trip	6.40	4.85	3.30	0.71	4.90	17.26	10.12	2.08	2.81	6.50	10.01	6.24

TABLE XXVIII

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BOAT FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON GRENADA RESERVOIR FOR 1959-1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	160	109	12	91	10	50	*	3	20	96	117	87
Hours Fished	649.75	330.25	37.00	282.25	36.00	268.50	*	13.75	68.25	323.75	360.00	343.00
Number of Fish Caught	709	488	29	551	77	356	*	12	18	292	249	249
Pounds of Fish Caught	633.5	462.9	30.5	524.0	68.0	217.0	*	12.0	16.0	261.8	130.7	156.7
Number of Fish Per Hour	1.09	1.48	0.78	1.95	2.14	1.33	*	0.87	0.26	0.90	0.69	0.73
Pounds of Fish Per Hour	0.97	1.40	0.82	1.86	1.89	0.81	*	0.87	0.23	0.81	0.36	0.46
Avg. Length of Completed Trip	4.36	4.30	3.00	3.63	3.67	5.81	*	4.25	4.43	5.42	5.30	5.86
Number of Fish Per Trip	4.75	6.34	2.34	7.08	7.85	7.73	*	3.70	1.15	4.88	3.66	4.28
Pounds of Fish Per Trip	4.23	6.02	2.46	6.75	6.94	4.71	*	3.70	1.02	4.39	1.91	2.70

* No Boat Fishermen Checked.

TABLE XXIX

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BANK FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON GRENADA RESERVOIR FOR 1958-1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	23	13	89	70	56	59	18	27	19	183	90	29
Hours Fished	65.25	40.50	358.25	175.25	200.75	184.00	82.25	66.25	44.00	557.25	375.75	110.00
Number of Fish Caught	15	35	462	257	150	831	156	69	24	815	515	187
Pounds of Fish Caught	9.3	28.0	282.3	129.3	87.5	560.5	62.4	34.0	16.3	671.1	321.0	60.0
Number of Fish Per Hour	0.23	0.86	1.29	0.75	0.75	4.52	1.90	1.04	0.55	1.46	1.37	1.70
Pounds of Fish Per Hour	0.14	0.69	0.79	0.74	0.44	3.05	0.76	0.51	0.37	1.20	0.85	0.55
Avg. Length of Completed Trip	3.00	*	5.52	2.25	3.70	3.55	4.75	4.00	2.44	5.41	3.70	5.63
Number of Fish Per Trip	0.69	2.58	7.51	4.48	2.78	16.05	9.03	4.16	1.34	7.90	5.07	9.57
Pounds of Fish Per Trip	0.42	2.07	4.58	1.67	1.63	10.83	3.61	2.04	0.90	6.49	3.15	3.10

* No completed trips checked by creel clerk, used July, 1958, average trips.

TABLE XXX

MONTHLY SUMMARY OF CREEL CENSUS CHECKS OF BANK FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, CATCH PER HOUR OF EFFORT, AVERAGE LENGTH OF COMPLETED TRIPS, AVERAGE NUMBER AND POUNDS OF FISH PER FISHERMAN TRIP ON GRENADA RESERVOIR FOR 1959-1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Fishermen	66	7	16	37	29	6	15	15	3	62	32	40
Hours Fished	131.00	18.00	52.75	119.75	90.50	20.50	23.00	29.50	4.25	158.00	55.25	131.25
Number of Fish Caught	28	19	75	205	58	27	6	7	1	174	7	48
Pounds of Fish Caught	14.5	7.0	42.5	151.2	27.8	13.0	5.0	5.0	0.5	128.5	5.0	21.6
Number of Fish Per Hour	0.26	1.06	1.42	1.71	0.64	1.32	0.26	0.24	0.24	1.10	0.13	0.37
Pounds of Fish Per Hour	0.13	0.39	0.81	1.26	0.31	0.63	0.22	0.17	0.12	0.81	0.09	0.16
Avg. Length of Completed Trip	4.43	*	3.25	3.75	3.16	5.50	4.75	2.75	†	4.13	2.67	2.88
Number of Fish Per Trip	1.06	4.70	4.62	6.41	2.02	7.26	1.24	0.66	0.66	4.54	0.35	1.07
Pounds of Fish Per Trip	0.62	1.23	2.63	4.73	0.98	3.47	0.95	0.47	0.33	3.35	0.24	0.46

* No completed trips checked by creel clerk, used July, 1959, average trip.

† No completed trips checked by creel clerk, used February, 1960, average trip.

TABLE XXXI
THE NUMBER AND PERCENT COMPOSITION OF EACH SPECIES AS CHECKED BY THE
CREEL CENSUS CLERK ON GRENADA RESERVOIR FOR 1958-1960

<i>Species</i>	<i>1958-1959</i>		<i>1959-1960</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Largemouth and Spotted Bass	1,602	10.64	739	20.04
White and Black Crappie....	9,934	66.01	2,315	62.77
Bluegill	3,093	20.55	377	10.22
Warmouth	128	0.85	53	1.44
Drum	18	0.12	2	0.05
Carp	19	0.13	18	0.49
Channel Catfish	92	0.61	63	1.71
Blue Catfish	15	0.10	6	0.16
Flathead Catfish	5	0.03	6	0.16
Bullheads	140	0.93	108	2.93
Bowfin	5	0.03	1	0.03
TOTAL	15,051	100.00	3,688	100.00

On Grenada Reservoir from July 1, 1958 through June 30, 1959, it was estimated that 56,521 fishermen fished 300,271 hours and caught 420,339 fish that weighed 324,127 pounds. The average annual catch per hour of effort was 1.40 fish and 1.08 pounds. (Table XXXII.)

From July 1, 1959 through June 30, 1960, it was estimated that 64,337 fishermen fished 296,746 hours and caught 283,337 fish that weighed 221,772 pounds. The average annual catch per hour of effort was 0.95 fish and 0.75 pounds. (Table XXXIII.)

When the 1958-1959 estimated fishing pressure was broken down into months it revealed that 11.78 percent of the fishing pressure in hours occurred in April. June received the heaviest pressure for the 1958-1959 year. The combined months of April, May and June of 1959, received 48.95 percent of the estimated total year's fishing pressure and December, January and February combined received only 7.22 percent. In 1959-1960, April received 21.19 percent of the estimated total year's fishing pressure. April, May and June combined received 65.59 percent of the fishing pressure for the year and December, January and February received only 5.66 percent.

TABLE XXXII

THE ESTIMATED NUMBER OF FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, AND CATCH PER HOUR OF EFFORT ON GRENADA RESERVOIR FROM JULY 1, 1958 TO JUNE 30, 1959

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Totals
Fishermen	6,409	9,883	4,586	1,629	2,405	1,792	1,079	2,079	2,939	6,098	7,344	10,278	56,521
Hours Fished	34,004	56,846	17,425	4,653	9,826	9,158	5,277	7,242	8,862	35,386	53,820	57,772	300,271
Number of Fish Caught	48,576	65,756	19,379	2,343	11,837	34,712	13,115	7,816	8,575	44,113	87,276	76,841	420,339
Pounds of Fish Caught	37,759	46,878	16,676	1,367	8,976	27,090	8,608	3,460	5,851	39,610	66,864	60,988	324,127
No. of Fish Per Hour	1.43	1.16	1.11	0.50	1.20	3.79	2.49	1.08	0.97	1.25	1.62	1.33	1.40
Pounds of Fish Per Hour	1.11	0.82	0.96	0.29	0.91	2.96	1.63	0.48	0.66	1.12	1.24	1.06	1.08

TABLE XXXIII

THE ESTIMATED NUMBER OF FISHERMEN, HOURS FISHED, NUMBER AND POUNDS OF FISH CAUGHT, AND CATCH PER HOUR OF EFFORT ON GRENADA RESERVOIR FROM JULY 1, 1959 TO JUNE, 30, 1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Totals
Fishermen	7,706	7,582	2,581	2,091	4,379	261	15	46	863	12,951	10,879	14,983	64,337
Hours Fished	33,653	32,683	7,842	7,409	16,071	1,503	23	154	2,765	62,868	49,112	82,663	296,746
Number of Fish Caught	33,718	47,064	6,938	13,853	30,068	1,995	6	85	684	61,270	29,062	58,594	283,337
Pounds of Fish Caught	29,774	42,706	6,415	12,295	25,986	1,174	5	80	446	50,949	15,351	36,591	221,772
No. of Fish Per Hour	1.00	1.44	0.88	1.87	1.87	1.33	0.26	0.55	0.25	0.97	0.59	0.71	0.95
Pounds of Fish Per Hour	0.88	1.31	0.82	1.66	1.62	0.80	0.22	0.52	0.16	0.81	0.31	0.44	0.75

SUMMARY

On all three of the Reservoirs there was an increase in the percent of women and children in the parties contacted in 1959-1960, over those of 1958-1959. There was an increase in the percent of women and children going on fishing trips without the presence of a man in 1959-1960, over that of 1958-1959. More fishermen were contacted by the creel census clerks in 1958-1959, than in 1959-1960, on all three of the Reservoirs (Tables I, XII, and XXIII).

The average number of people per boat on Sardis and Enid varied only slightly from each other both years, whereas, the average number per boat on Grenada was a little higher. In 1958-1959, Enid had a higher ratio of private to rented boats followed by Grenada and then Sardis. In 1959-1960, Grenada had the highest ratio of private to rented boats followed by Enid and then Sardis (Tables II, XIII and XXIV).

Sardis and Enid Reservoir received a considerably higher percent of non-resident fishermen than Grenada in both years. However, on all three of the reservoirs there was an increase in the percent of non-resident fishermen in 1959-1960, from that of 1958-1959. A breakdown of the license data is presented in Tables III, XIV and XXV. In 1958-1959, on Sardis, 42.82 percent of the fishermen contacted possessed a non-resident license and 53.57 percent in 1959-1960. Smith* reported that 47.0 percent of the fishermen contacted on Sardis in creel census checks from April 1 to June 23, 1950, were non-residents. In a creel census † conducted on Sardis, May 1 to June 18, 1952, it was reported that 36.0 percent of the fishermen contacted were non-residents.

The non-resident's states were not recorded on the creel census cards, however, the clerks reported that the overwhelming majority of the non-residents came from Tennessee and in particular, Memphis, Tennessee. Therefore, by comparing the percent of non-residents contacted on the reservoirs with the distances from Memphis to each, it will possibly explain the differences in the percent of non-residents contacted on each reservoir. The distance from Memphis, Tennessee, to each reservoir via US Highway 51 is as follows: approximately 60 miles to Sardis, 75 miles to Enid, and 105 miles to Grenada. In both years Sardis had the highest percentage of non-resident fishermen with Enid close behind and then Grenada.

Fishing success was based on completed trips. A successful trip was one where one or more fish were caught. In 1958-1959, Sardis registered the highest percent of successful fishermen at 92.76 percent, followed by Grenada at 91.98 percent and then Enid at 88.96 percent. In 1959-1960, Enid registered the highest percent of successful fishermen at 92.97 percent, followed by Sardis at 90.74 percent and Grenada at 90.09 percent.

Natural baits were used by more fishermen than any other types on all three of the reservoirs in both years. The percent of artificial baits used in 1959-1960, on Sardis and Enid, decreased from the percent in 1958-1959, while the percent on Grenada increased from 1958-1959 to 1959-1960. (Tables IV, XV and XXVI). By the same token, the percentage of the catch in bass (Tables IX, XX and XXXI) varied with the increase or decrease in the percent of artificial bait used.

In reviewing the 1958-1959 boat fishermen's catch per hour by months on the three reservoirs, there was little difference noted for the year (Figure 1). The two exceptions being on Grenada in December and January when the catch per hour of effort increased 2.87 and 2.72 fish per hour respectively above the highest catch for the same months on Sardis and Enid.

In 1959-1960, the boat fishermen's catch per hour (Figure 2) by months on the three reservoirs tended to be a little more erratic than that of 1958-1959.

In 1958-1959, the monthly catch per hour of effort for the bank fishermen (Figure 3) varied from month to month in no set pattern on the three reservoirs. The 1959-1960, bank fishermen's catch per hour (Figure 4) varied more in the first seven months than the last five months of the year.

Crappie comprised the largest percentage of the catch in 1958-1959, and 1959-1960, on all three of the reservoirs (Tables IX, XX and XXXI) Sardis and Enid Reservoirs registered an increase in the percentage of crappie in 1959-

* Smith, Spencer H. Report of Fisheries Division Activities, Miss. Game and Fish Commission, August 1, 1949 to October 1, 1950, 65 pp. Typewritten Report.

† Anonymous Creel Census, Sardis Reservoir, May 1 to June 18, 1952, 9 pp. Typewritten Report.

1960, over that of 1958-1959, while on Grenada there was a decrease in the percentage during the same period. In a like manner, Sardis and Enid had a decrease in the percentage of bass in 1959-1960, and Grenada had a sizeable increase. All three reservoirs registered a decrease in the percentage of bluegill in 1959-1960, however, Grenada's decrease was considerably higher than the decrease on Sardis and Enid.

In reviewing the estimated fishing pressure and catch on the three reservoirs from July 1, 1958 through June 30, 1959 (Tables X, XXI and XXXII), Grenada not only received the greatest fishing pressure (300,271 hours) but also the highest catch per hour of effort in both number (1.40 fish per hour) and pounds (1.08 pounds per hour). Sardis was second in both pressure (242,719 hours) and catch (0.99 fish and 0.63 pounds per hour of effort). Enid was next with an estimated year's fishing pressure of 147,605 hours and a catch of 0.82 fish and 0.60 pounds per hour.

From July 1, 1959 through June 30, 1960 (Tables XI, XXII and XXXIII), Grenada received the largest amount of fishing pressure (296,746 hours) followed by Sardis (227,414 hours) and Enid (96,297 hours). During this same period Enid had the highest catch in numbers (1.00 fish per hour) followed by Grenada (0.95 fish per hour) and Sardis (0.80 fish per hour), but Grenada had the highest catch in pounds (0.75 pounds per hour) followed by Enid (0.62 pounds per hour) and Sardis (0.48 pounds per hour).

TABLE XXXIV

METHOD OF CALCULATING ESTIMATED FISHING PRESSURE AND HARVEST

<i>Total Number of Fishermen Calculation</i>	<i>Source of Information</i>
A. Boat Rentals	Corps of Engineers
B. Factor: Private to Rented	Actual Creel Census
C. Number Private Boats	A × B
D. Total Number of Boats	A + C
E. Factor: People/Rented Boat	Actual Creel Census
F. Factor: People/Private Boat	Actual Creel Census
G. Total Rented Boat Fishermen	E × A
H. Total Private Boat Fishermen	F × C
I. Total Boat Fishermen	G + H
J. Factor: Bank to Boat Fishermen	Air Counts
K. Total Bank Fishermen	J × I
L. Total Number of Fishermen	K + I
 <i>Total Harvest Calculation</i>	
M. Catch in Numbers	Actual Creel Census
N. Catch in Pounds (Estimated)	Actual Creel Census
O. Total Hours Fished	Actual Creel Census
P. Catch Per Hour in Number	M divided by O
Q. Catch Per Hour in Pounds	N divided by O
R. Average Fishermen Trip	Act. Creel Census Comp. Trips
S. Fish Per Fisherman Trip	P × R
T. Pounds Per Fisherman Trip	Q × R
U. Total Harvest in Number	S × L
V. Total Harvest in Pounds	T × L
W. % Composition of Species by Number	Actual Creel Census
X. % Composition by Species by Weight	Actual Creel Census
Y. Estimated No. of Species Harvested	W × U
Z. Estimated Lbs. of Species Harvested	X × V

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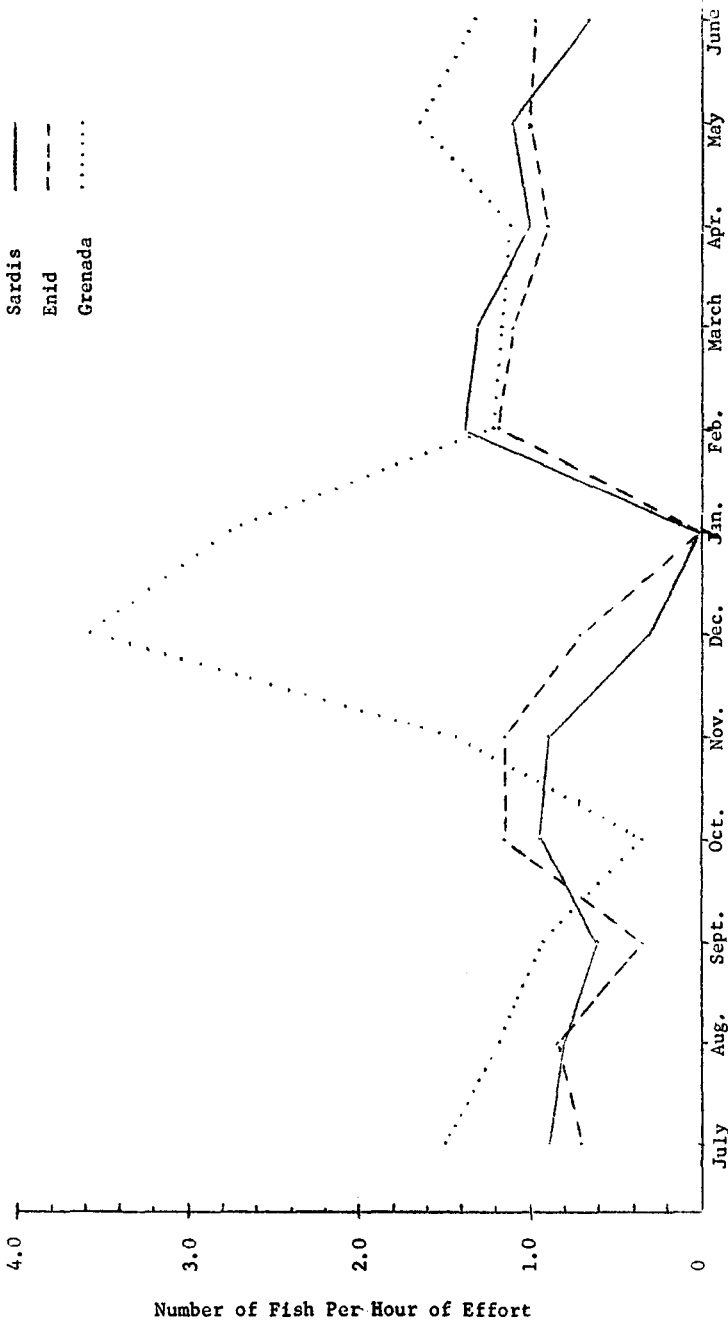


FIGURE 1. The monthly catch per hour of effort by the boat fishermen on the Reservoirs in 1958-1959.

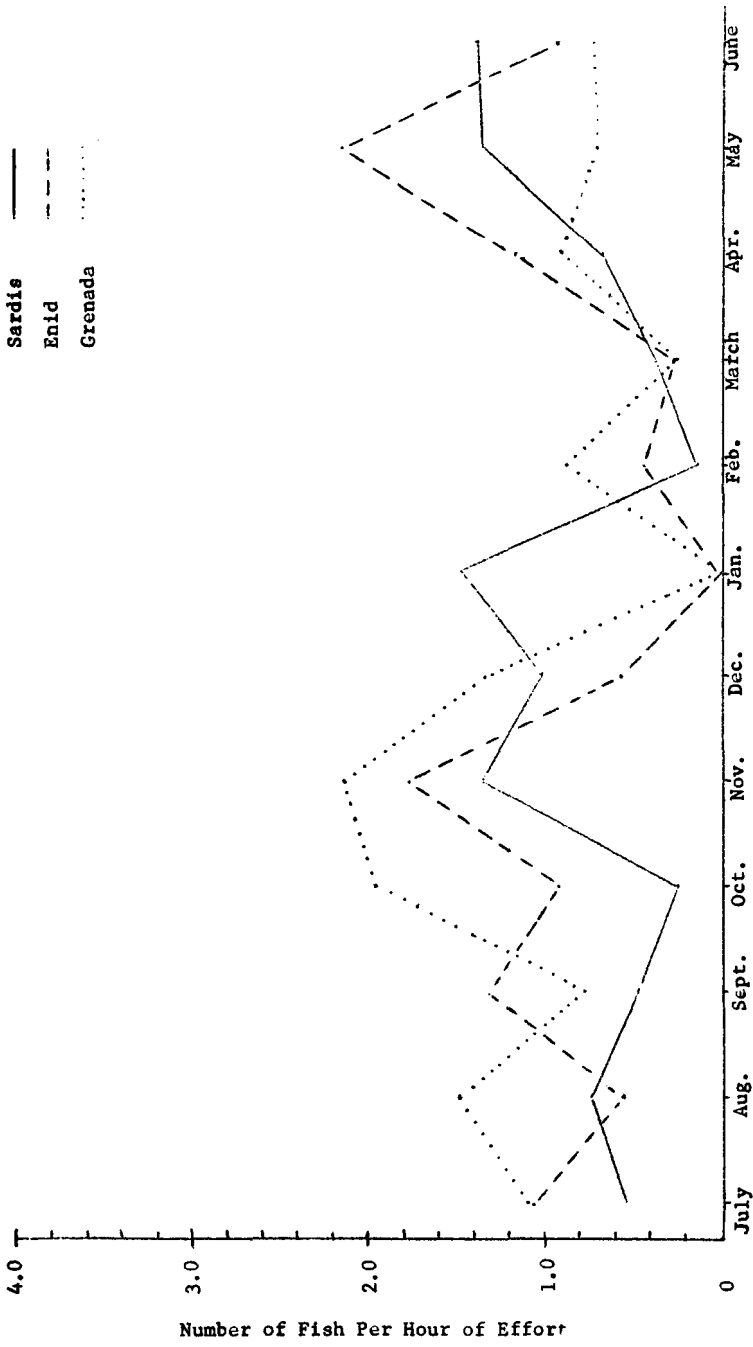


FIGURE 2. The monthly catch per hour of effort by the boat fishermen on Sardis Reservoir in 1959-60.

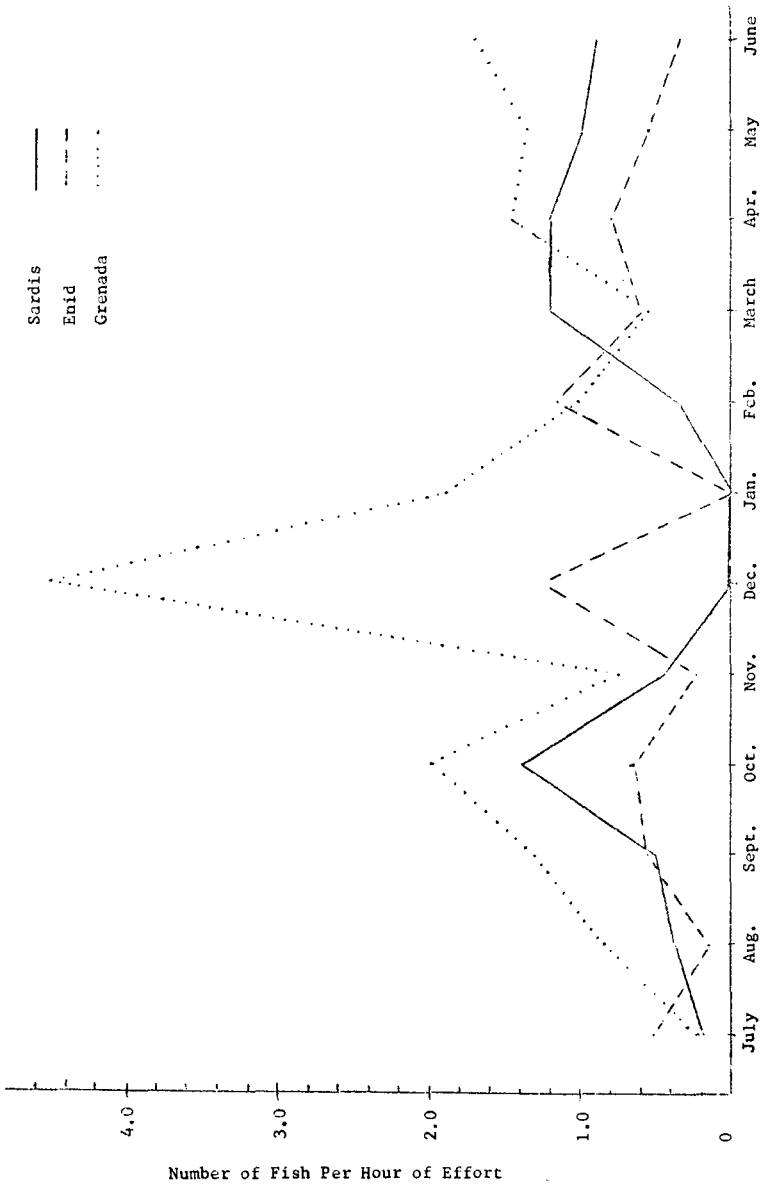


FIGURE 3. The monthly catch per hour of effort by the bank fisherman on the Reservoirs in 1958-1959.

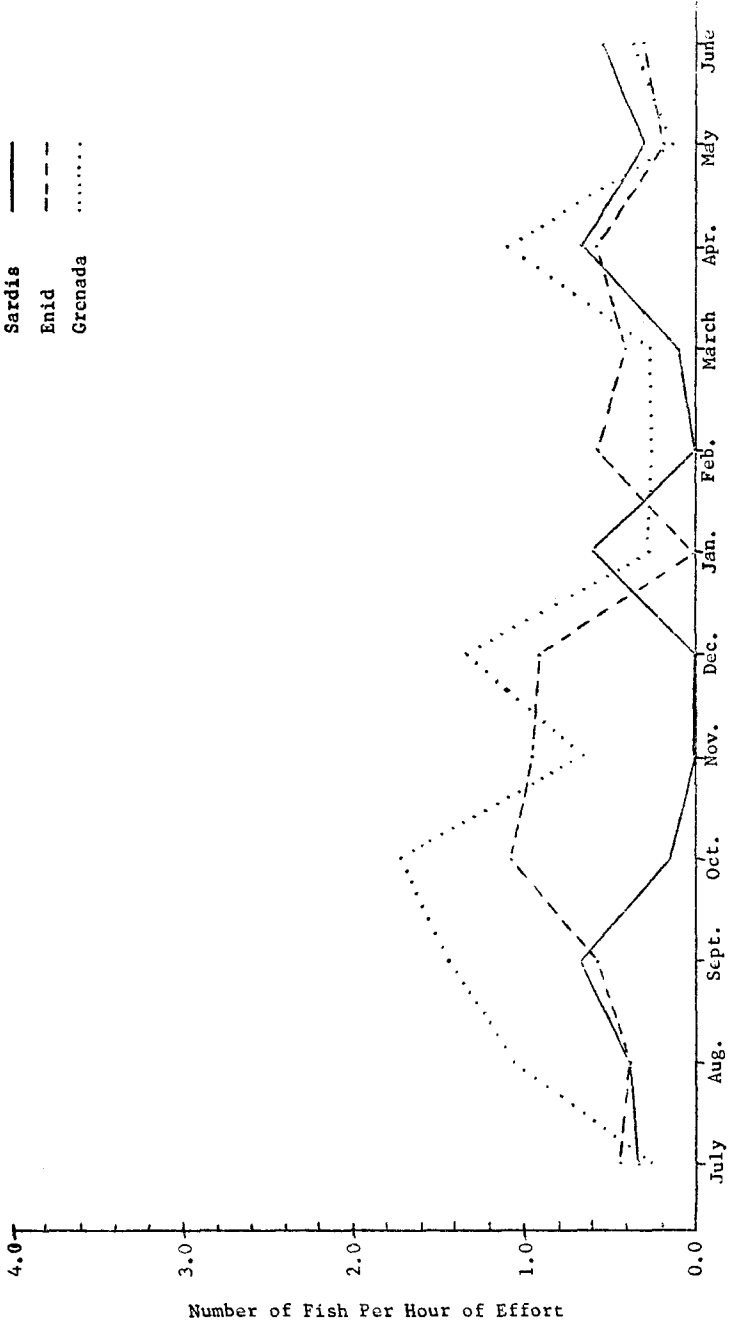


FIGURE 4. The monthly catch per hour of effort by the bank fishermen on the reservoirs in 1959-1960.