

JOB COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-6-R-12

FISHERIES INVESTIGATIONS AND SURVEYS OF THE WATERS OF REGION 5-B

Job No. E-6 Experimental Stocking of Largemouth Bass
and Threadfin Shad in Ponds in South Texas

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ABSTRACT

Monthly sampling of largemouth bass in the five ponds being used in the study was continued during 1964. An effort was made to take a minimum of 10 bass from each of the ponds on each trip. This was done by using a combination of seining and rod and reel sampling.

At this time the best or steadiest growth rate in the study ponds continues to be in Pond No. 2. This pond was originally stocked with largemouth bass at the rate of 100 per acre.

Most of the fishing was done at Ponds No. 1, 2, and 5. However, fishing seems to be best in Pond No. 1, which was stocked with 50 bass per acre. In Pond No. 1, it took an average of less than 20 minutes to catch a bass, whereas in Pond No. 3, it took an average of 30 minutes to catch a bass.

No evidence was found to indicate the presence of threadfin shad in Ponds No. 3, 4, and 5, but they are still present and apparently reproducing in Ponds No. 1 and 2. Green sunfish, bluegills and crayfish are providing the principal forage for the bass in Ponds No. 3 and 4, and not threadfin shad. Dragonfly larvae and unidentified insect remains provide the main forage for the bass in Pond No. 5. In addition to the shad in Ponds No. 1 and 2, bluegills, Rio Grande perch, crayfish and grass shrimp supplement the diet of bass.

An effort will be made to find additional ponds so that this work can be continued for another two years.

JOB COMPLETION REPORT

State of Texas

Project No. F-6-R-12

Name: Fisheries Investigations and Surveys of the Waters of Region 5-B

Job No. E-6

Title: Experimental Stocking of Large-mouth Bass and Threadfin Shad in Ponds in South Texas

Period Covered: January 1, 1964 through December 31, 1964

Objectives:

To determine growth rates and fishing success for largemouth bass stocked with threadfin shad as forage.

Techniques Used:

Monthly sampling of largemouth bass in the five ponds being used in the study was continued during 1964. An effort was made to take a minimum of 10 bass from each of the ponds on each trip. This was accomplished in most cases by using a combination of seining and rod and reel sampling.

A physical description of each pond along with its location was given in the completion report for Job E-6, D-J Project F-6-R-11.

In addition to bass sampling, data regarding temperature and water quality were recorded on a monthly basis for each of the ponds.

After the first seven months of this segment, fishermen were allowed to fish in the ponds and to keep whatever bass they were able to catch. Data on their catch were recorded on creel census cards provided for them by project personnel. The ponds were opened to fishing in August 1964.

Results and Discussion:

A comparison of temperature and water quality conditions in the five ponds being used in the study is given in Table 1. Though some changes in water quality occurred, they were minor in nature and they compared favorably with the results of the previous year.

Note that the ponds, although approximately comparable in size, fall into two distinct groups on the basis of water quality. Ponds 1, 2, and 5 are very

Table 1. A comparison of water conditions during 1964 in ponds stocked with largemouth bass and threadfin shad.

	POND NUMBER				
	1	2	3	4	5
Secchi disc (inches) Range Average	8 - 20 14.5	5 - 20 11.9	3 - 9 4.2	1 - 7 4.0	18 - 36
Oxygen (ppm) Surface range Bottom range	2.4-3.4 2.2-3.4	2.0-4.0 2.4-4.0	2.0-3.6 1.4-3.4	2.2-4.2 1.8-2.8	2.0-3.6 1.8-3.4
Carbon dioxide (ppm) Surface range Bottom range	0.0-2.8 0.0-2.8	0.0-2.4 0.0-2.4	0.0-trace 0.0-trace	0.0-0.4 0.0-0.6	0.0-2.0 0.0-2.2
Chlorinity (ppm) Surface range Bottom range	86 - 93 88 - 91	85 - 92 85 - 91	96 - 102 97 - 102	96 - 101 96 - 102	83 - 87 83 - 87
ph-th Alk. (ppm) Surface range Bottom range	120 - 130 120 - 140	120 - 126 126 - 130	160 - 174 162 - 174	160 - 170 162 - 174	120 - 136 126 - 130
pH Surface range Bottom range	7.8-8.8 7.8-8.8	7.7-8.8 7.8-8.6	8.8-8.8 8.8-8.8	8.0-8.8 7.9-8.8	7.5-8.8 7.5-8.8
Temp. °F. Surface range	54 - 86	54 - 86	51 - 83	51 - 83	54 - 82

similar in water quality and turbidity, whereas Ponds 3 and 4 are considerably more turbid and alkaline. Turbidity was the limiting factor in taking bass samples from Ponds 3 and 4.

The growth rates of the largemouth bass are compared in Figures 1 through 5. In most cases it was possible to collect the sample of 10 bass from Ponds 1, 2, and 5, but poor sampling results were obtained in Ponds 3 and 4; thus, there are significant gaps in the data for these two ponds.

On the basis of the data included in these tables, the best or steadiest growth rate in the study ponds continues to be in Pond No. 2. This pond was originally stocked with largemouth bass at the rate of 100 per acre. These fish increased from a mean of 108- to 178-mm in 1963 and from 181- to 291-mm in 1964.

Fishing Success - Most of the fishing was done at Ponds No. 1, 2, and 5. Due to the turbidity, little fishing was done at Ponds No. 3 and 4. Presently, fishing seems to be best in Pond No. 1, which was stocked with 50 bass per acre. During 1964, it took an average of 19.6 minutes to catch a bass in Pond No. 1, whereas in Pond No. 3, it took an average of 30 minutes to catch a bass. The average time for taking a bass in the other three ponds is as follows: Pond No. 2, one bass per 22.8 minutes; Pond No. 4, one bass per 28.7 minutes; and Pond No. 5, one bass per 23.4 minutes.

Project personnel and fishing guests of the pond owners used spinning rigs and rods and reels with artificial lures. No live bait was used.

No evidence was found to indicate the presence of threadfin shad in Ponds No. 3, 4, and 5; however, they are still present and apparently reproducing in Ponds No. 1 and 2. Therefore, it must be pointed out that green sunfish, bluegills and crayfish are providing the principal forage for the bass in Ponds No. 3 and 4 instead of threadfin shad. Also, dragonfly larvae and unidentified insect remains provide the main forage for the bass in Pond No. 5, not shad. In addition to the threadfin shad in Ponds No. 1 and 2, evidence was found to indicate that bluegills, Rio Grande perch, crayfish and grass shrimp supplement the bass' diet.

Due to the high turbidity in Ponds No. 3 and 4, little information on the fish population has been obtained up to this time. However, when the ponds are treated with rotenone in 1965, more data will be available.

Recommendations:

This job should be continued to learn as much as possible about the five stocking ratios here in South Texas. Additional ponds should be found to continue this work for at least two more years.

Prepared by Charles T. Menn
Project Leader

Approved by Marion Toole
Coordinator

Date March 11, 1965

Kenneth C. Jurgens
Regional Supervisor

Figure 1. Growth rate of largemouth bass in Experimental Pond No. 1, 1964
(Stocking rate: 50 bass/acre)

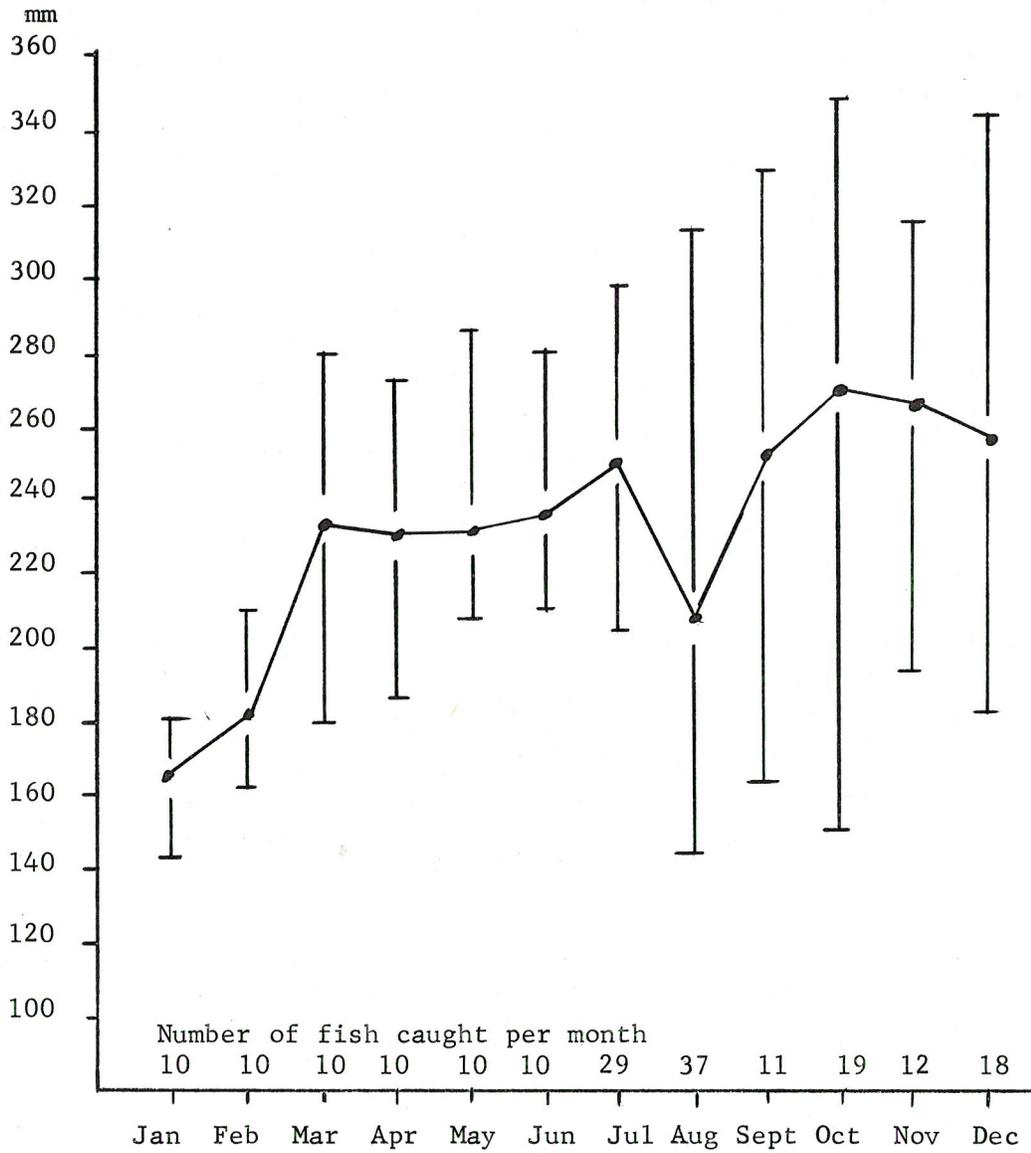


Figure 2. Growth rate of largemouth bass in Experimental Pond No. 2, 1964
(Stocking rate: 100 bass/acre)

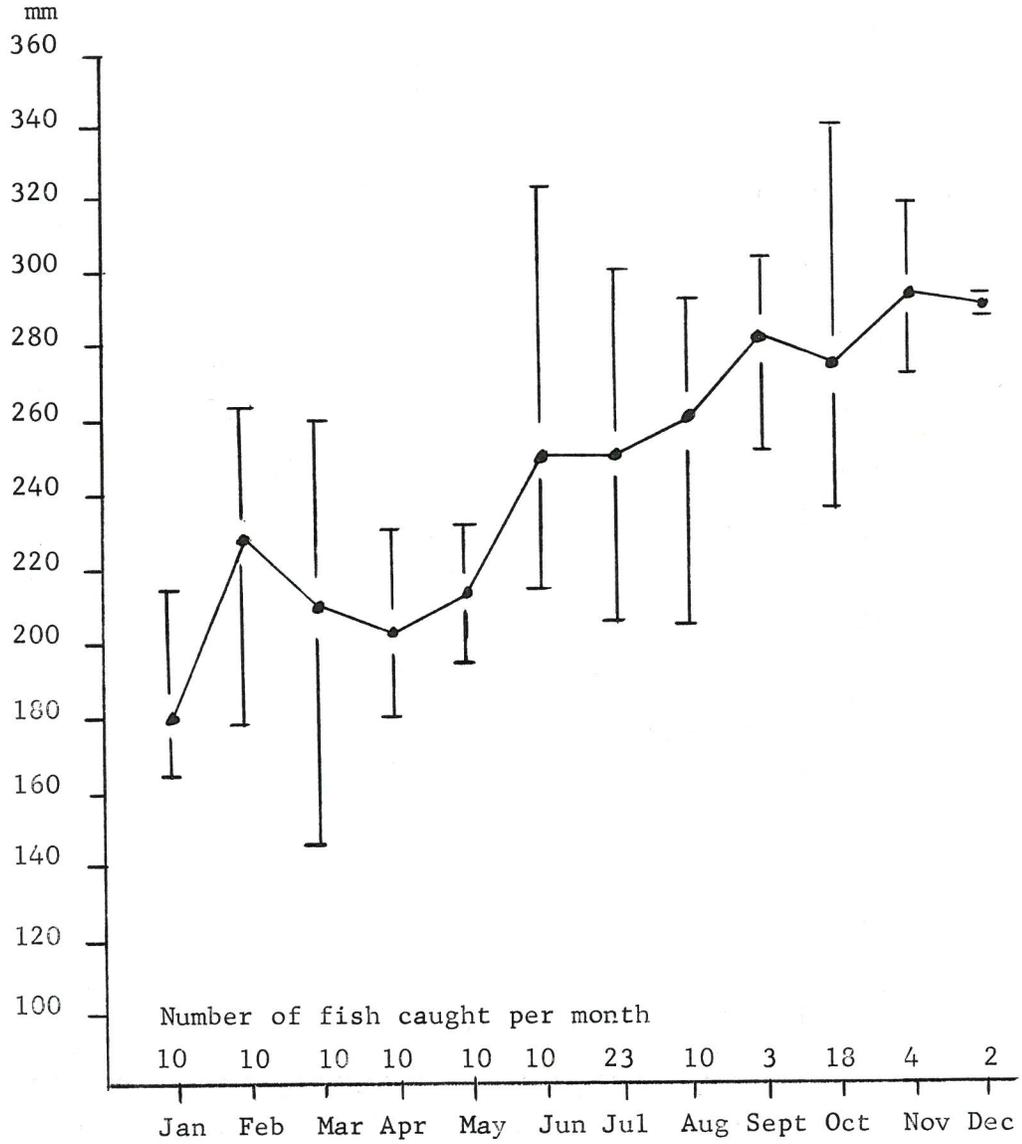


Figure 3. Growth rate of largemouth bass in Experimental Pond No. 3, 1964
(Stocking rate: 150 bass/acre)

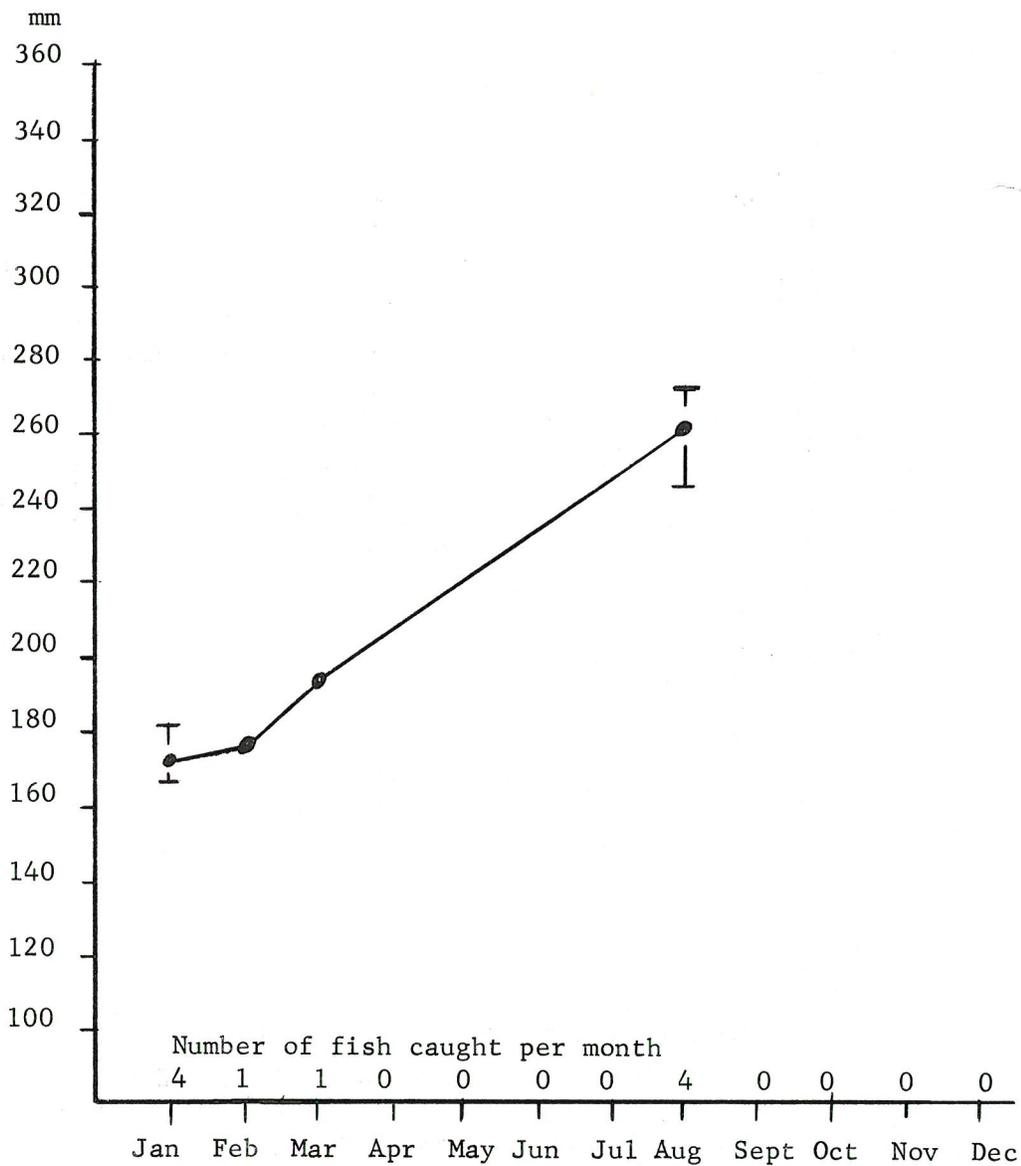


Figure 4. Growth rate of largemouth bass in Experimental Pond No. 4, 1964
(Stocking rate: 200 bass/acre)

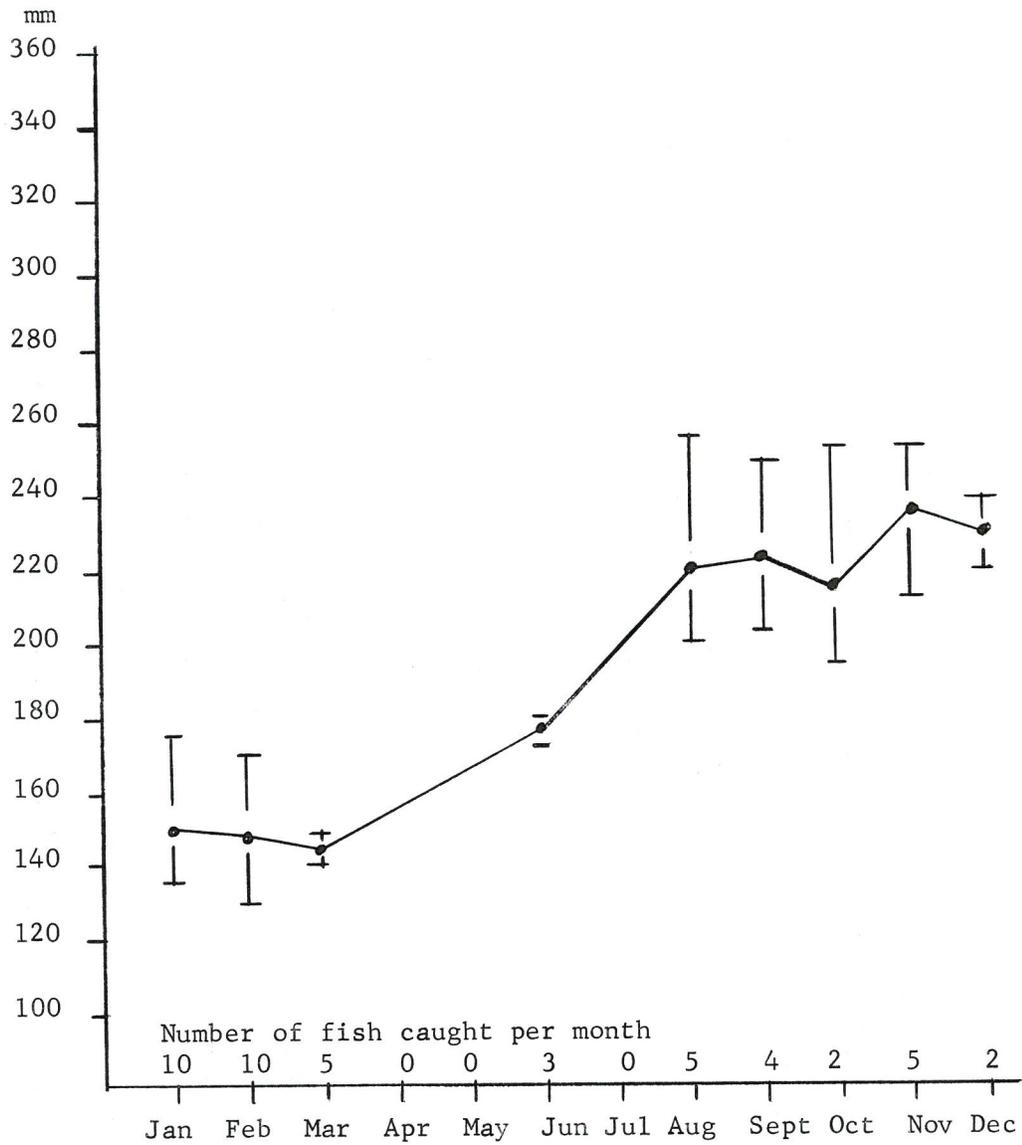


Figure 5. Growth rate of largemouth bass in Experimental Pond No. 5, 1964
(Stocking rate: 250 bass/acre)

