

FILE

JOB COMPLETION REPORT

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FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-4-R-8

FISHERIES INVESTIGATION AND SURVEYS OF THE WATERS OF REGION 4-B

Job No. E-5    Experimental Control of Undesirable  
Species in Lakes of Region 4-B

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March 27, 1962

ABSTRACT

The development of methods for selectively controlling undesirable fish species was continued with field work being done on Clear Lake, Leon County, Texas. As in past segments the emphasis was placed on gar control.

Traps that utilized the inability of the gar to negotiate a sharp turn had been tested in previous segments and discarded as ineffective. The shallow gill net, floated on the surface, had been tested during the previous segment and had offered some promise but in final analysis offered little advantage over the usual gill net 8 feet deep.

The use of an artificial lure made from plastic covered nylon clothesline, which had been developed for casting, offered some encouragement. This lure was attached to a staging line to form a trotline and was floated at the surface. Gar could be taken on this tackle but the nylon filaments tended to become entangled with the staging line.

A fathometer check of the lake failed to locate a winter concentration of gar, such as had been reported from other lakes, and the use of chemicals or explosives was not attempted.

Repeated flooding of this lake by the Trinity River and Keechi Creek handicapped the work and prompted the discontinuance of this job.

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## JOB COMPLETION REPORT

State of TEXAS

Project No. F-4-R-8

Name: Fisheries Investigations and Surveys of  
the Waters of Region 4-B

Job No. E-5

Title: Experimental Control of Undesirable  
Species in Lakes of Region 4-B

Period Covered: November 1, 1960 to October 31, 1961

### Objectives:

To develop methods of selectively controlling undesirable fish species and the improvement of gear for rough fish control.

### Techniques Used:

The field work on this job was done at Clear Lake, Leon County, where a large population of gar was found to exist. The lake also contains a rather large population of game fish as well as the usual concentration of rough species.

Two previous segments of this job were devoted to the development and testing of traps which were built to take advantage of the inability of gar to execute a sharp turn while providing an escape route for other species. These traps proved ineffective and were abandoned.

The third segment was devoted to the testing of shallow gill nets which were only three feet deep. The net was floated at the surface and was designed to take advantage of the need for the gar to surface to gulp air. These nets were tested by setting them along with the regular eight foot nets to compare the catch as to numbers of various species taken. The catch of each type of net was recorded separately.

The present segment continued the testing of shallow gill nets and included the testing of artificial lures made from plastic covered nylon line which is very effective in gar fishing. These lures were attached to staging and hung at intervals on a trotline.

This segment included another attempt to locate suspected winter gar concentrations with a fathometer so that explosives or chemicals could be used on such concentrations.

### Results:

As previously stated the gar traps were not effective because the gar would not enter the traps. It appears that such a trap would be effective only if used in a current where the fish would be more likely to enter.

The testing of the shallow gill net was hampered considerably by the repeated flooding of Clear Lake by the Trinity River and Keechi Creek. The Trinity River flooded the lake four times between November 1, 1960 and March 1, 1961. Keechi Creek flooded the lake once during that period and again in April, 1961.

The results of these net sets indicate that the trend noted during the previous segment is continuing. The percent of rough fish in the catch of the shallow net is slightly higher than in the nets which were eight feet deep (Table 1). The most significant rise in the number of specimens taken occurred in gizzard shad, which may well be expected as the netting was done at times when the shad were of a size that allowed them to be taken in greater numbers than at other periods.

There appears to be little difference in the catch of game fish in two types of nets and the number of gar taken is identical.

A further comparison was made in an attempt at evaluating the effectiveness of these two types of gill nets. Table 2 offers data regarding the catch per linear foot of net and per square foot of net. The average number of fish per 100 square feet of net was 1.67 for the shallow nets and 1.95 for the deep nets. This is not a significant difference and the difference is less pronounced in the catch of gar per 100 square feet of net. The difference here is 0.58 and 0.57 for the shallow and deep nets respectively. This difference is too slight to warrant the use of the special nets on the basis of the catch of gar. An examination of the catch of game fish per 100 square feet of net was 0.57 for the shallow net and 0.64 for the deep net. Again the difference is slight and is not considered to be significant.

The nylon filament lure was constructed from a plastic covered line with a core of unbraided filaments. This line is frequently used as a clothesline and is inexpensive. The lure is made by using an 18 inch length of this line which is doubled and secured with soft wire to form a loop about 2 inches long. The free ends are stripped of the plastic covering just below the wrapping and the filaments are separated. This lure may be used on casting or spinning tackle and has proved to be effective in taking gar. A plan to utilize this lure on a trotline was tested. The lure took gar but tended to become entangled with the staging which reduced the effectiveness.

During the past segment a fathometer check was made to determine the location of any collections of logs or other debris in order that they might be marked on a map of the lake. Another fathometer check was made during the winter to locate possible concentrations of gar and the first check was necessary to prevent confusing debris with gar. If gar concentrations were found, they were to be treated with chemicals or explosives. The fathometer check indicated that there was no such concentrations and this method of control was abandoned.

The reorganization of the Texas Game and Fish Commission into five Regions resulted in the middle and lower Trinity River watershed being included in Region 3. This made a change in this job necessary and therefore, it is recommended that Job E-5 be discontinued.

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Date March 27, 1962

Regional Supervisor

Table 1. A comparison of Clear Lake Gill Net Catches.

Species	1958 - 1959				1959 - 1960				1960- 1961			
	3-foot deep nets		8-foot deep nets		3-foot deep nets		8-foot deep nets		3-foot deep nets		8-foot deep nets	
	Number	Per cent										
Alligator gar*	4	3.25	17	6.91	19	7.88	23	6.44	3	4.54	2	2.85
Spotted gar*	21	17.07	14	5.69	29	12.03	40	11.20	5	7.58	6	8.57
Longnose gar*	23	18.70	23	9.35	30	12.45	61	17.09	12	18.18	12	17.15
Gizzard shad*	42	34.15	89	36.18	35	14.52	77	21.57	17	25.76	11	15.71
Smallmouth buffalo*	11	8.94	29	11.79	22	9.13	17	4.76	2	3.03	6	8.57
River carpsucker*	2	1.63	8	3.25	9	3.74	8	2.24				
Carp*			1	0.41								
Channel catfish**	17	13.82	43	17.48	24	9.95	23	6.44	7	10.60	4	5.72
Striped mullet*	1	0.81	1	0.41	1	0.42	1	0.28				
White bass**			1	0.41								
Largemouth bass**			2	0.81	4	1.66	4	1.12				
Bluegill sunfish**			2	0.81								
White crappie**	2	1.63	14	5.69	68	28.22	97	27.17	20	30.31	29	41.43
Black crappie**			2	0.81			6	1.69				
Freshwater drum*												
Totals	123	100.00	246	100.00	241	100.00	357	100.00	66	100.00	70	100.00
Total rough fish*	104	84.55	182	73.99	145	60.17	227	63.58	39	59.91	37	52.86
Total game fish**	19	15.45	64	26.01	96	39.83	130	36.42	27	40.09	33	47.14
Total gar fish	48	39.02	54	21.95	78	32.36	124	34.73	20	31.82	20	28.57

Table 2. Comparison of the catches of Shallow and Deep Types of Gill Nets at Clear Lake.

	Shallow gill nets (100' X 3')			Deep gill nets (100' X 8')		
	1958-59 (22 nets)	1959-60 (52 nets)	1960-61 (10 nets) Average (84 nets)	1958-59 (12 nets)	1959-60 (26 nets)	1960-61 (5 nets) Average (43 nets)
Total fish caught	123	241	430	246	357	673
Fish per 100 linear feet	5.59	4.64	5.12	20.50	13.73	14.00
Fish per 100 square feet	1.86	1.55	1.67	2.56	1.75	1.75
Total gars caught	48	78	146	54	124	198
Gars per 100 linear feet	2.18	1.50	1.74	4.50	4.77	4.00
Gars per 100 square feet	0.73	0.50	0.58	0.56	0.60	0.50
Total game fish caught	19	96	142	64	124	221
Game fish per 100 linear feet	0.86	1.85	1.69	5.33	4.77	5.14
Game fish per 100 square feet	0.29	0.62	0.57	0.67	0.60	0.64
Total rough fish caught*	104	145	288	182	233	452
Rough fish per 100 linear feet	4.73	2.79	3.43	15.17	8.96	10.51
Rough fish per 100 square feet	1.58	0.93	1.14	1.90	1.12	1.31

\* Includes gar.