FILE

JOB COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-2-R-10

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

Job No. E-6: Inks Lake Fish Population Control Experiment

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ABSTRACT

An attempt was made to remove rough fish from Inks Lake using various size gill nets, hoop nets, fyke nets and chemical fish toxicants. After two years of work the job was dropped because the amount of time spent could not be justified with the limited harvest of undesirable fish. During this period 118,200 feet of gill nets and selected fyke and hoop nets removed a total of 9,485.69 pounds of rough fish from the lake. Chemical eradication removed large numbers of gizzard shad and fresh water drum but no close estimates of numbers or weight were possible. No renewal of this job is anticipated.

JOB COMPLETION REPORT

State of Texas

Project No. F-2-R-10 Name: Fisheries Investigations and Surveys of the Waters of Region II-B.

Job No. E-6 Title: Inks Lake Fish Population Control Experiment.

Period Covered: February 1, 1962 - January 31, 1963

Objectives:

To intensively remove rough fish species from Inks Lake as an experiment to determine the effect of such removal upon the specific composition of the total fish population and angling success.

Techniques used:

A total of 118,200 feet of gill net was set during the two years of this job to intensively remove smallmouth buffalo, Ictiobus bubalus, river carpsucker, Carpiodes carpio, and longnose gar, Lepisosteus osseus, from the lake. Of this total, 90,950 feet consisted of 2-inch square mesh; 1,500 feet of 2½-inch square mesh; 23,900 feet of 3-inch square mesh, and 1,850 feet of 4-inch square mesh.

Cottonseed cake and sour corn were used occasionally in an attempt to concentrate bottom feeders in a netting sector.

Baited and unbaited fyke nets were used in specific areas of the lake to determine if they would prove more efficient in harvesting rough fish.

One slough of the lake, Devil's Waterhole, was treated with rotenone on December 12, 1961, at a concentration of 0.12 ppm to selectively remove gizzard shad. Plans called for treating various sloughs with concentrations of liquid rotenone approaching 0.21 ppm to selectively remove gizzard shad. However, treatment of the entire lake for this purpose was accomplished in early March of 1962, under Job 16a35, Project F-14-D-6. In order that adequate evaluation of this job could be made, slough treatments were suspended.

Approximately eight experimental gill nets were set each month under Job B-24 (Resurvey). These collections were made at designated stations in an attempt to obtain data which could be compared with previously collected information. From this, an attempt was made to determine any population changes resulting from rough fish removal efforts.

A limited creel census was conducted during June, July, and August of 1962 and 1963, with creel checks undertaken on one weekday and one weekend day of each week during this period. Data collected were used to determine any changes in fishing success.

A checklist of species mentioned in this report is given in Table 1.

Findings:

Inks Lake was treated on March 1, 1962, with liquid rotenone at 0.14 ppm for a selective shad kill under Project F-14-D-5, Job 16a36. From all visual evidence, the selective treatment was successful. Shad comprised 48.88 per cent by numbers and 10.57 per cent by weight of the fish collected during the 1961 resurvey as opposed to 11.11 per cent by weight and 2.34 per cent by number of the fish collected through extensive netting immediately after the selective treatment. Figures from the 1962 survey show shad comprising 32.85 per cent by number and 17.11 per cent by weight. There was an extensive kill of fresh water drum resulting from the selective treatment, although this species was rarely collected by netting.

In 13 months of netting, from 1961 to 1963, 9,485.69 pounds of rough fish were harvested. As shown in Table 2, the majority of this total consisted of smallmouth buffalo, river carpsucker, and carp. Only 11.57 pounds of fish per surface acre, or 8.02 pounds of fish per 100 feet of net, were collected on Inks Lake from 1961 to 1962. The netting was carried out for only 13 of a possible 24 months, but if the figures were expanded for a 24-month period, the end result would still not be extensive enough to warrant the man-days spent on the project.

Baiting netted areas with cottonseed cake did not increase the rough fish harvest.

Fyke nets were set in areas where smallmouth buffalo and carpsucker were observed to be schooling, but use of this type of net resulted in a collection of turtles and small channel catfish exclusively. Employment of hoop nets also met with negligible results.

Limited creel censuses, which were conducted during June, July, and August of 1961 and 1962, revealed the success of anglers on Inks Lake during these periods. Tables 2 and 3 show the number, size of fish, and other data collected during the creel censuses of 1961 and 1962 respectively. In 1961, the total fish per-man-hour for Inks Lake was 0.92. This figure seems to represent fair success for the fisherman, but it should be pointed out that 37 per cent of the total catch was white bass, Roccus chrysops, which are caught seasonly. Also, 39 per cent of the total fish per-man-hour consisted of sunfish, Lepomis sps.. In 1962, sunfish made up 72 per cent of the total fish per-man-hour on Inks Lake. The total fish per-men-hour was 0.81.

From the data collected on the creel censuses, it is evident that the fishing on Inks Lake has not improved during the two years that this job was carried on.

The table below illustrates the per cent of rough fish by weight and number as determined by experimental gill netting over the past eight years. The decided edge held by rough fish in previous years has been decreased during the 1962 project period. This seventeen per cent drop of rough fish in number was probably caused by the selective treatment of the lake for gizzard shad, rather than the harvesting of rough fish by netting.

LAKE INKS ROUGH FISH RATIO, 1955 - 1962

	1955	1956	1957	1958	1959	1960	1961	1962
Per cent rough fish (Number)	63	78	63	71	65	70	73	56
Per cent rough fish (Weight)	74	74	78	71	74	79	79	80

After two years of operation of the project, the methods of harvesting rough fish have been somewhat exhausted and still there has been no discernible reduction of rough fish in Inks Lake. Because the lack of success of the job does not warrant the man power spent on it, it is recommended that the project be dropped. Another approach to improve fishing on Inks Lake will be undertaken in the immediate future.

Prepared by Richard L. White
Asst. Project Leader

Date: August 30, 1963

Approved by Marion Toole
Coordinator

John E. Tilton
Regional Supervisor

TABLE 1

A CHECKLIST OF SPECIES MENTIONED IN REPORT

SCIENTIFIC NAME	COMMON NAME
Lepisosteus osseus	longnose gar
Dorosoma cepedianum	gizzard shad
Ictiobus bubalus	smallmouth buffalo
Carpiodes carpio	river carpsucker
Cyprinus carpio	carp
Ictalurus punctatus	channel catfish
Pylodictis olivaris	flathead catfish
Roccus chrysops	white bass
Micropterus salmoides	largemouth bass
Chaenobryttus gulosus	warmouth
Lepomis cyanellus	green sunfish
Lepomis microlophus	redear sunfish
Lepomis macrochirus	bluegill
Lepomis megalotis	longear sunfish
Pomoxis annularis	white crappie
Aplodinotus grunniens	freshwater drum

TABLE II LAKE INKS ROUGH FISH CONTROL NETTING RESULTS, JANUARY - DECEMBER, 1961*

SPECIES	February 22-24 No.	Lbs.	March 28-31 No.	Lbs.	April 13-20 No.	Lbs.	May 11-19 No.	Lbs.	June 20-27 No.	Lbs.	July 11-21 No.	Lbs.
Lepisosteus osseus	10	57.81	10	47.45	39	221.36	49	302.01	34	213.54	13	80.38
Dorosoma cepedianum	29	7.13	--	-----	3	1.87	1	0.25	4	1.57	3	1.83
Ictiobus bubalus	3	22.00	2	8.50	94	595.45	105	498.75	103	476.60	162	775.31
Carpiodes carpio	--	-----	75	163.70	163	462.35	96	273.55	163	404.85	94	237.52
Cyprinus carpio	3	12.62	2	6.87	15	47.13	91	254.13	53	148.46	112	328.00
Aplodinotus grunniens	--	-----	--	------	--	------	2	1.00	1	11.69	3	5.12
Totals	45	99.56	89	226.52	314	1328.16	344	1329.69	358	1256.71	387	1428.16

SPECIES	September 14-22 No.	Lbs.	October 10-17 No.	Lbs.	December 5-15 No.	Lbs.	Total Number	Total Weight in Lbs.
Lepisosteus osseus	4	18.06	5	38.75	93	469.98	257	1449.34
Dorosoma cepedianum	2	1.56	--	------	--	------	42	14.31
Ictiobus bubalus	71	339.72	117	580.17	--	------	657	3296.50
Carpiodes carpio	31	89.52	47	139.90	81	271.20	750	2042.59
Cyprinus carpio	61	242.29	17	69.51	4	20.75	358	1129.76
Aplodinotus grunniens	4	1.37	6	8.94	--	-----	16	28.12
Totals	173	692.52	192	837.27	178	761.93	2080	7960.62

* Note: No netting collections made on Inks Lake during months of January, August or November, 1961.

TABLE II (Contd.)

LAKE INKS ROUGH FISH CONTROL, NETTING RESULTS JANUARY TO JUNE 1962*

	January 9-19		April 17-20		May 8-11		June 5-8		Total	Total
	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	Number	Wt. - Lbs.
Lepisosteus osseus	--	-----	2	17.50	5	23.11	1	6.25	8	46.76
Dorosoma cepedianum	9	7.20	--	-----	--	------	--	------	9	7.20
Ictiobus bubalus	16	76.65	8	35.46	70	351.32	73	408.20	167	871.63
Carpiodes carpio	60	135.01	13	47.20	28	96.35	15	59.09	116	337.65
Cyprinus carpio	2	8.13	8	30.20	30	118.78	19	76.29	59	233.40
Aplodinotus grunniens	2	2.81	--	-----	--	------	3	25.00	5	27.81
Lepomis macrochirus	--	-----	--	-----	--	------	2	0.50	2	0.50
TOTAL										1,524.95

* No netting in February and March.

TABLE III INKS LAKE CREEL CENSUS, NUMBER OF FISH CAUGHT BY LENGTHS, JUNE - AUGUST, 1961

SPECIES CAUGHT	Length in Inches												Length in Inches													TOTALS
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	27	37		
Carp	-	-	-	-	-	-	-	1	-	3	2	1	2	2	4	-	2	-	4	1	-	1	1	-		24
Gold fish	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		1
Spottail shiner	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		3
Channel catfish	-	-	-	-	4	8	13	11	40	18	5	5	-	4	1	2	1	3	-	1	-	-	-	-		116
Yellow catfish	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1		3
Yellow bullhead	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		1
Largemouth bass	-	-	1	1	1	3	5	16	34	22	5	1	4	2	2	2	-	1	-	-	1	-	-	-		101
Spotted bass	-	-	-	-	-	1	4	3	6	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-		17
Warmouth	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		3
White bass	-	-	-	-	5	27	62	68	224	84	12	-	1	1	-	-	-	-	-	-	-	-	-	-		484
Green sunfish	5	25	21	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		59
Redear sunfish	2	8	14	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		26
Orangespotted sunfish	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		1
Bluegill	73	95	137	25	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		333
Longear sunfish	10	50	27	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		97
White crappie	-	-	1	1	-	1	6	5	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-		17
Drum	-	-	-	-	-	19	6	5	6	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-		39
Totals	91	180	207	47	15	59	96	110	312	132	24	7	8	9	7	4	4	3	4	4	2	1	1	1		1325

TABLE III (Contd.)

INKS LAKE CREEL CENSUS, NUMBER OF FISH CAUGHT BY LENGTHS, JUNE - AUGUST, 1962

SPECIES CAUGHT	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	32	Total
Redear sunfish	-	6	25	34	20	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88
Longear sunfish	-	-	23	24	11	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63
Largemouth bass	-	-	-	-	5	1	10	2	4	4	-	2	-	1	-	-	-	-	-	-	-	-	-	-	29
Carp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	6	1	4	-	3	1	-	19
Warmouth	1	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Channel catfish	-	-	-	-	1	1	4	20	46	44	8	11	5	2	1	-	-	-	-	1	-	-	-	-	144
Flathead catfish	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	4
Green sunfish	2	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
White bass	-	-	-	-	-	-	-	6	86	7	5	3	-	-	-	-	-	-	-	-	-	-	-	-	107
White crappie	-	-	-	-	-	-	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Bluegill	32	84	303	117	35	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	632
TOTALS	35	91	353	237	73	12	16	30	137	57	13	16	5	3	1	1	4	6	1	6	-	3	1	1	1102

TABLE III (Con't)

Inks Lake Creel Census Data 1961 - 1962

	1961	1962
Number of people fishing	602	589
Number of man-hours fished	1,441	1,348
Number of fish caught	1,325	1,102
Number of fish caught per person	2.20	1.817
Number of fish caught per-man-hour	0.92	0.81

Principal Game Species	No. Caught Per Fisherman		No. Caught Per Man-Hour	
	1961	1962	1961	1962
Number largemouth bass caught	0.17	0.049	0.070	0.022
Texas spotted bass caught	0.03	0.010	0.012	0.004
Number white crappie caught	0.03	0.224	0.012	0.107
Number channel catfish caught	0.19	0.182	0.080	0.079
Number white bass caught	0.80	0.006	0.340	0.003
Number sunfish (all species)	0.86	1.346	0.360	0.588