

Report of Fisheries Investigations

Creel Census of Fort Brown Lake

by

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Dingell-Johnson Project F-6-R-8, Job B-15
January 1, 1960 - February 28, 1960

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ABSTRACT

In an effort to determine the value of rehabilitation work done at Fort Brown Lake, a creel census was begun on March 1, 1959, and completed on February 28, 1960. A total of 5,520.52 fishing units was estimated during the twelve-month census period. The "fishing units" were figured by adding the total number of man-hours spent fishing and the total pounds of dressed fish caught. Based on the cost of the rehabilitation work, each dollar spent produced 4.88 fishing units or each fishing unit cost 20.4 cents.

Job Completion Report

State of TEXAS

Project No. F-6-R-8

Name: Fisheries Investigations and Surveys of
the Waters of Region 8-B

Job No. B-15

Title: Creel Census of Fort Brown Lake

Period Covered: January 1, 1960 - February 28, 1960

OBJECTIVES

To determine the fishing pressure and fish catch of a small lake in the lower Rio Grande Valley which has previously been renovated and restocked.

PROCEDURE

A retired man who lives near the lake was employed as extra labor to gather creel census data every fifth day for eight hours. The sample days, which were picked at random, included several week days (usually three) as well as week-end days (usually two) during each month. As many fishermen as possible were contacted and interviewed during a four-hour period twice a day in an effort to establish the fishing pressure. Also, the catch of each fisherman was checked to determine the number, kind, and size of fish taken. Records of each party were kept on fish census cards.

DISCUSSION

On March 1, 1959, Fort Brown Lake was opened for sport fishing by the City of Brownsville. Because of the location of this lake, within the city limits of Brownsville, the City has jurisdiction over the lake. The lake was chemically treated on February 4, 1958, (Project F-14-D-2, Job 16a-9) and later restocked with 5,000 black bass (Micropterus salmoides) and 3,000 channel catfish (Ictalurus punctatus) (Project F-14-D-2, Job 18a-5). At the time of stocking, the black bass were approximately two inches and the channel catfish were about three inches in total length. After the renovation program was completed, fishing was prohibited for a year in order to allow the bass ample time to become established and possibly spawn.

Since this job covered a period of twelve months and parts of three segments, the first phase of this job was reported on (F-6-R-6, Job B-15) as well as the second phase (Project F-6-R-7, Job B-15). However, since the third phase was only two months in duration, the data collected during the second phase are presented in detail with that of the third phase.

Table 1 shows the creel census data gathered during the second and third phases of this job (from July 1959 through February 1960). The first part of this table shows the monthly creel census data and the second part shows the monthly data multiplied by the "multiplicant factor". The multiplicant factor was figured by dividing the number of days in a month by the number of days censused that month. By

applying the multiplicant factor to the actual census data, it was possible to arrive at an estimated total number of fishermen, man-hours fished, fish caught, fishing units, etc., during each month (see Table 1). Table 1 shows the estimated number of fishing units for the second and third phases only.

The estimated total number of fishing units over the twelve-month period was 5,520.52. The fishing units were figured by adding the total man hours fishing and the total dressed weight (in pounds) of the fish caught. For example, one man hour of fishing was considered equal to one fishing unit, likewise one pound of dressed fish (gills and visceral organs removed) is equal to one fishing unit. Project personnel caught, weighed, and measured bass from the lake on March 2 and 3, 1959. These measurements were used to determine the weight of the bass measured during the creel census. Dressed weights for the catfish, warmouth bass (Chaenobryttus gulosus) and white crappie (Pomoxis annularis) were obtained from netted specimens from this lake less about 15 percent weight loss for gills and visceral organs. Length measurements of the fish caught during the creel census were recorded to the nearest inch. For example, a fish that measured between ten and one-half and eleven and one-half inches in length was recorded as an eleven inch fish. During the first month of the census, almost 4,200 fishing units were figured which is over 75 percent of the total number of units figured for the entire year. This large number of fishing units during the first month after the season opened, might be attributed to two factors. The first being a new lake is almost certain to attract more fishermen in the first month than at any other time. This is due to interest and widespread publicity. Secondly, project personnel assisted the census clerk for the first three days in order to check more fishermen.

During the first phase of this job, black bass were caught exclusively. However, during the second and third phases of this job, channel catfish, blue catfish (Ictalurus furcatus), warmouth bass, and white crappie were caught as well. Since black bass and channel catfish were the only species stocked after the very successful fish eradication, the blue catfish, warmouth bass, and white crappie undoubtedly entered the lake through the pumps which brings water out of the Rio Grande to supply this lake. The incoming water was screened prior to entering the lake, but debris choked the untended screens causing breaks and holes in them. Gill netting (in September 1959, Project F-6-R-7, Job B-11) revealed gizzard shad (Dorosoma cepedianum), carp (Cyprinus carpio), bluegill sunfish (Lepomis macrochirus), and Rio Grande cichlids (Cichlasoma cyanoguttatum) are present in addition to the species listed in the creel census.

Table 2 shows the numbers of fish caught during the second and third phases of this job. The black bass comprised about 20.00 percent of the fishermen's creel by number, but over 40.00 percent by weight. All the bass caught during this period ranged from 10- to 16-inches in length, with the majority being 11- and 12-inches long. Since many of these bass appear to be close to two years of age, it is very possible that some of the 10- and 11-inch bass caught during the latter part of this creel census were spawned in the late winter or early spring of 1959. Undoubtedly bass smaller than ten inches in length were caught and probably returned to the lake, thus evading the creel census.

Table 3 shows the weight (in pounds) of the fish caught during the second and third phases of the job.

A variety of baits were used in an effort to harvest the fish. Minnows and plugs (artificial lures) were found to have been the most effective baits to catch black bass. Dough bait, worms, shrimp, and salt pork, to mention a few, took small numbers of catfish, warmouth bass, white crappie, and even fewer black bass.

All of the fishing was done from the shore using rods and reels and cane poles. The average fisherman day was one and one-half hours. This lake, unlike many others, is fished primarily by local residents and out-of-state guests who stop by and fish this downtown lake for a short time. There are no cottages or commercial developments on this lake as is the case on many public lakes.

CONCLUSIONS

The cost of eradicating and restocking Fort Brown Lake was \$1,130.71. This included salaries and wages, subsistence and traveling expenses, materials and supplies, etc. During the twelve-month creel census, a total of 5,520.52 fishing units was estimated. The cost of the rehabilitation work divided by the total units showed the cost to be about 20.4 cents per fishing unit produced or each dollar spent produced 4.88 fishing units. Although comparative data are not available, it appears that the rehabilitation work was very worthwhile on the basis of the number of fishing units produced.

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Approved by Marion Toole
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Table 1. - Monthly creel census data, Fort Brown Lake, July 1959 through February 1960

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total
Number of census days	6	6	5	5	6	5	5	5	43
Multiplicant factor	5.17	5.17	6.00	6.20	5.00	6.20	6.20	5.80	--
Number of fishermen censused	5	5	14	12	6	17	21	20	100
Number of man hours fished	7	7	31	17.5	13	20.5	23.5	20	139.5
Number of fish caught	6	9	11	85	23	15	26	22	197
Pounds of dressed fish caught	5.40	7.32	2.36	15.94	5.88	4.16	12.47	6.64	60.17

Monthly creel census data multiplied by multiplicant factor

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total
Estimated number of fishermen	25.85	25.85	84.00	74.40	30.00	105.40	130.20	116.00	591.70
Estimated number of man hours	36.19	36.19	186.00	108.50	65.00	127.10	145.70	116.00	820.68
Estimated number of fish caught	31.02	46.53	66.00	527.00	115.00	93.00	161.20	127.60	1167.35
Estimated number fish per man hour	0.86	1.29	0.35	4.86	1.77	0.73	1.11	1.10	1.42
Estimated pounds of dressed fish caught	27.92	37.84	14.16	98.83	29.40	25.79	77.31	38.51	349.76
Estimated fishing units	64.11	74.03	200.10	207.33	94.35	152.95	223.01	154.51	1170.44

Table 2. - Numbers and percent of fish caught by fishermen, Fort Brown Lake, July 1959 through February 1960

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total	Percent
<u>Ictalurus punctatus</u>	3	3	0	2	0	0	0	2	10	5.07
<u>Ictalurus furcatus</u>	0	0	2	4	2	0	3	0	11	5.58
<u>Micropterus salmoides</u>	3	6	0	3	3	3	16	5	39	19.80
<u>Chaenobryttus gulosus</u>	0	0	0	63	18	0	0	0	81	41.12
<u>Pomoxis annularis</u>	0	0	9	13	0	12	7	15	56	28.43
Total	6	9	11	85	23	15	26	22	197	100.00

Table 3. - Pounds and percent of fish caught by fishermen, Fort Brown Lake, July 1959 through February 1960

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total	Percent
<u>Ictalurus punctatus</u>	3.38	2.81	0	1.13	0	0	0	1.07	8.39	13.94
<u>Ictalurus furcatus</u>	0	0	0.67	1.28	0.95	0	1.45	0	4.35	7.23
<u>Micropterus salmoides</u>	2.02	4.51	0	1.56	1.86	2.17	9.71	3.07	24.90	41.38
<u>Chaenobryttus gulosus</u>	0	0	0	9.99	3.07	0	0	0	13.06	21.71
<u>Pomoxis annularis</u>	0	0	1.69	1.98	0	1.99	1.31	2.50	9.47	15.74
Total	5.40	7.32	2.36	15.94	5.88	4.16	12.47	6.64	60.17	100.00

