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JOB PROGRESS REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-2-R-18

REGION 2-B FISHERIES STUDIES

Job No. B-26: Fishery Management Recommendations

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June 7, 1972

Summary

Preliminary meetings and public hearings to discuss fishing regulations were conducted in the Edwards Plateau and the Possum Kingdom Regulatory Areas. Existing fishing regulations were determined to be adequate and no changes were made.

Lakes Canyon, Decker, Inks, Lyndon B. Johnson and Stillhouse Hollow were surveyed during this segment. Recommendations concerning management of the above lakes were made as follows:

1. to stock walleye pike in Canyon Reservoir to add another sports fish species and also to provide some control of an overabundant rough fish population.
2. to stock Decker Lake with flathead catfish to control undesirable black bullhead and an overabundant sunfish population.
3. to renovate Lake Lyndon B. Johnson while it is reduced in size.
4. to continue collecting basic inventory data from Stillhouse Hollow Reservoir to be used for future management purposes.
5. to continue this job so that candidate waters for management practices can be located and appropriate practices implemented.

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June 7, 1972

## Job Progress Report

State of Texas

Project No. F-2-R-18

Name: Region 2-B Fisheries Studies

Job No. B-26

Title: Fishery Management Recommendations

Period Covered: February 1, 1970 to January 31, 1971

### Objectives:

To determine the need for changes in fish harvest regulations, population control, stocking, evaluation of commercial netting and vegetation control in Region 2-B waters.

### Procedures:

1. Meetings were held between game management officers, biologists, and supervisory personnel to discuss existing hunting and fishing laws and to propose changes needed in the hunting and fishing regulations for the counties in the Edwards Plateau, Possum Kingdom, and Trinity-Brazos Regulatory areas. The proclamation resulting from the above meetings was presented to the public at hearings in each county under Regulatory Authority and to the Commissioners of the Texas Parks and Wildlife Department for their approval or disapproval.
2. Lakes Canyon, Decker, Inks, Lyndon B. Johnson and Stillhouse Hollow were surveyed quarterly during this segment using standard 150-foot experimental gill nets. Seining collections and water quality determinations were incorporated in each survey.
3. Observations were made during each survey to determine if aquatic vegetation was present in such quantities that access or fishability of fishing areas might be inhibited.

### Findings and Discussion:

#### Canyon Reservoir

This 12,890 surface acre reservoir was stocked with walleye fry in 1965 in an attempt to establish another sport fish species to utilize the abundant forage fish populations and hopefully to add some degree of natural control of the rough fish population. The initial introduction was a failure since no walleye have been recovered, but further attempts will be made to establish walleye during 1971 or 1972. Canyon Reservoir was surveyed again this segment, as in the previous two segments, to gather basic inventory data to be used to more accurately evaluate future walleye introductions.

As can be seen from the composite of the results of quarterly collections made during this segment and given in Table 1, rough fish species comprise 74 per cent of the fishery by weight and number, with gizzard shad accounting for 29

per cent of the total, by number. This segment's results varies only slightly from survey results collected during the preceding two segments (see Job Progress Reports from F-2-R-16 and F-2-R-17), indicating this reservoir has reached its peak in sports fishing production relatively early when compared to other reservoirs in this region.

#### Decker Lake

Decker Lake, a 1,200 surface acre impoundment, owned and operated by the City of Austin, was completed and stocked with hatchery reared fish in October of 1967. The lake was closed to fishing until February 1970 to allow completion of public facilities and to protect the hatchery stocked fish until they had attained enough size to provide quality fishing.

A composite of the quarterly surveys made during this segment are given in Table 2. Rough fish accounted for 52.39 per cent by number and 72.42 per cent by weight of the catch. Desirable game fish species, namely largemouth bass, channel catfish, blue catfish, white bass, and white crappie, accounted for only 12.68 per cent by number and 21.99 per cent by weight. Five sunfish species make up the remaining 34.93 per cent of the population by number, but this was anticipated because of the large number of small farm ponds with established sunfish populations that are located on the watershed of the lake. Black bullhead catfish were also prominent in the collections (29.79 per cent by number) but this was also a result of contamination from farm ponds on the watershed.

Despite the low game fish population reflected by reconnaissance data, Decker Lake has produced a substantial yield of largemouth bass and channel catfish in the 1-3 pound category since the lake was opened to fishing.

#### Inks Lake

Lake Inks, an 800 surface acre lake located in the Colorado River Basin immediately below Lake Buchanan, in Burnet and Llano Counties, Texas, was impounded in 1938 for hydroelectric power production and for this reason, it is maintained at a constant level by water releases from Lake Buchanan. At various times during the late winter and early spring months of 1967, 1968, and 1969, the lake was lowered eight to ten feet for periods of up to three months and it was feared that water level fluctuations during the early spring months might have reduced the spawning success of white bass and largemouth bass. The composite of survey results given in Table 3 shows these fears to be unfounded.

#### Lake Lyndon B. Johnson

This lake was commercially fished from 1962 through 1966. Because the merits of commercial fishing as a management tool were suspect, Project F-2-R conducted monthly netting surveys, concurrent with commercial fishing operations, to determine the effect of such operations on the fishery of Lake LBJ.

Commercial fishing operations were terminated in 1966, but it was felt that a post-commercial fishing study was essential for validity of the data already collected. Therefore, quarterly netting surveys were started in Segment 16 (1967) and continued through this segment. The lake was lowered 36 feet during October 1970 for repairs to flood gates and for construction of a steam turbine electrical generating plant; therefore, only three netting surveys were conducted during this segment. Table 4 is a composite of the results of those surveys.

As indicated by the chart below, the smallmouth buffalo population seems to be expanding while the river carpsucker population is declining, but this is the first indication the shift in the smallmouth buffalo-river carpsucker population that coincided with the beginning of commercial fishing may be returning to pre-commercial fishing ratios and it may only be a temporary trend.

Number of Fish Caught Per 100 Feet of Net

<u>Species</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Smallmouth buffalo	7.71	3.23	2.32	1.53	0.91	0.69	0.92	1.32
River carpsucker	4.19	5.18	5.78	6.38	7.46	7.78	8.67	7.05

Weight of Fish Caught Per 100 Feet of Net

Smallmouth buffalo	22.93	14.79	11.65	8.68	5.67	5.28	8.55	8.83
River carpsucker	5.13	6.68	8.48	10.54	11.81	14.00	14.81	12.01

In either case, no further unbiased information, in relation to the commercial fishing study, can be collected because the lake has been reduced to about one-sixth its normal size (approximately 1,000 surface acres) and the existing fish populations subjected to extremely crowded conditions at the time of year when forage for predator species is at its lowest point. Therefore, the post-commercial fishing study should be terminated and a final report prepared on the data collected through October 1970.

Studies are now underway to determine if renovation (chemical or mechanical) for Lake LBJ is economically feasible. It is believed that such renovation is justified in view of the unbalanced fish population and the apparent decline of fishermen angling success since 1965.

Stillhouse Hollow

This relatively new 6,500 surface acre reservoir was constructed on the Lampasas River in Bell County to provide flood control and a future water supply for municipalities located in that portion of the Brazos River Watershed located in Central Texas. Its proximity to several large municipal areas and Fort Hood Military Reservation assures it of receiving heavy fishing pressure.

That Stillhouse Hollow is still experiencing an expanding fish population is reflected in the composite of netting results collected during this segment and given in Table 5. Rough fish make up only 58.63 per cent by number and 65.25 per cent by weight of the population. During this segment, the reservoir has produced a good yield of largemouth bass and channel catfish for the sports

Table 1

Canyon Reservoir  
Annual Netting Results, 1970-1971  
Sixty Standard Gill Nets

Species	Number	Per Cent by No.	Weight in Pounds	Per Cent by Weight
Longnose gar*	19	1.46	47.31	1.88
Gizzard shad*	383	29.53	159.62	6.35
River carpsucker*	34	2.62	171.00	6.80
Gray redhorse sucker*	425	32.77	775.32	30.85
European carp*	98	7.56	718.37	28.58
Channel catfish	68	5.24	160.12	6.37
Yellow bullhead*	2	.16	1.12	.05
Flathead or yellow catfish	46	3.55	350.25	13.93
Largemouth bass	43	3.32	70.31	2.80
Warmouth	29	2.24	9.62	.38
Green sunfish	12	.93	2.88	.11
Redear sunfish	16	1.23	4.81	.19
Bluegill sunfish	81	6.24	15.50	.63
Redbreast sunfish	3	.23	1.06	.04
Longear sunfish	5	.38	.69	.02
Rio Grande perch	8	.62	4.12	.16
White crappie	17	1.31	13.99	.56
Black crappie	5	.38	6.81	.27
Golden shiner*	3	.23	.76	.03
<b>Total</b>	<b>1,297</b>	<b>100.00</b>	<b>2,513.66</b>	<b>100.00</b>
Rough Fish*	972	74.94	1,877.62	74.69
Game Fish	179	13.80	601.48	23.93
Sunfish	146	11.26	34.56	1.38

Table 2  
 Decker Lake  
 Annual Netting Results, 1970-1971  
 Fifty-Five Standard Gill Nets

Species	Number	Per Cent by No.	Weight in Pounds	Per Cent by Weight
Gizzard shad*	373	16.37	351.58	15.95
Smallmouth buffalo*	109	4.78	850.68	38.59
River carpsucker*	14	.62	47.57	2.16
European carp*	1	.04	2.50	.12
Channel catfish	156	6.85	328.08	14.88
Blue catfish	2	.09	9.12	.41
Black bullhead*	679	29.79	330.50	14.99
White bass	5	.22	13.26	.60
Largemouth bass	120	5.27	135.25	6.14
Warmouth	4	.18	.44	.02
Green sunfish	107	4.69	18.36	.83
Redear sunfish	84	3.69	30.70	1.39
Bluegill sunfish	531	23.29	66.37	3.01
Longear sunfish	70	3.07	7.56	.34
White crappie	8	.35	8.19	.37
Golden shiner*	16	.70	4.44	.20
<b>Total</b>	<b>2,279</b>	<b>100.00</b>	<b>2,204.60</b>	<b>100.00</b>
Rough Fish*	1,194	52.39	1,596.39	72.42
Game Fish	289	12.68	484.78	21.99
Sunfish	796	34.93	123.43	5.59

Table 3  
 Inks Lake  
 Annual Netting Results, 1970-1971  
 Forty Standard Gill Nets

Species	Number	Per Cent by No.	Weight in Pounds	Per Cent by Weight
Longnose gar*	20	1.54	55.94	2.32
Gizzard shad*	529	40.66	201.93	8.39
Smallmouth buffalo*	88	6.76	742.81	30.87
River carpsucker*	201	15.45	671.54	27.91
Gray redhorse sucker*	1	.08	4.25	.18
European carp*	45	3.46	98.81	4.11
Channel catfish	55	4.23	64.68	2.69
Yellow bullhead*	1	.08	.44	.02
Flathead or yellow catfish	41	3.15	394.12	16.38
White bass	74	5.69	104.00	4.32
Texas spotted bass	4	.31	5.81	.24
Largemouth bass	10	.77	17.50	.73
Warmouth	11	.84	2.81	.12
Green sunfish	12	.92	4.92	.20
Redear sunfish	44	3.38	5.56	.23
Bluegill sunfish	143	10.99	16.50	.68
Redbreast sunfish	6	.46	1.31	.06
Longear sunfish	6	.46	.69	.03
White crappie	7	.54	5.82	.24
Freshwater drum*	3	.23	6.69	.28
<b>Total</b>	<b>1,301</b>	<b>100.00</b>	<b>2,406.13</b>	<b>100.00</b>
Rough Fish*	888	68.26	1,782.41	74.08
Game Fish	191	14.68	591.93	24.60
Sunfish	222	17.06	31.79	1.32

Table 4

Lake Lyndon B. Johnson  
Annual Netting Results, 1970-1971  
Forty-Five Standard Gill Nets

Species	Number	Per Cent by No.	Weight in Pounds	Per Cent by Weight
Longnose gar*	19	1.13	47.00	2.07
Gizzard shad*	595	36.13	219.82	9.68
Smallmouth buffalo*	89	5.36	596.68	26.26
River carpsucker*	476	28.75	810.87	35.69
Gray redhorse sucker*	13	.77	32.06	1.41
European carp*	16	.95	78.99	3.48
Channel catfish	31	1.86	55.06	2.42
Yellow bullhead*	1	.05	.19	.01
Flathead or yellow catfish	26	1.56	232.50	10.23
White bass	30	1.81	28.12	1.24
Largemouth bass	5	.30	9.44	.42
Warmouth	14	.84	3.63	.16
Green sunfish	17	1.02	2.25	.09
Redear sunfish	15	.90	2.63	.12
Bluegill sunfish	205	12.37	27.12	1.19
Redbreast sunfish	4	.24	.75	.03
Longear sunfish	20	1.20	1.94	.09
White crappie	25	1.50	14.69	.65
Freshwater drum*	53	3.20	107.69	4.74
Golden shiner*	1	.06	.38	.02
<b>Total</b>	<b>1,655</b>	<b>100.00</b>	<b>2,271.81</b>	<b>100.00</b>
Rough Fish*	1,263	76.31	1,893.68	83.35
Game Fish	117	7.07	339.81	14.96
Sunfish	275	16.62	38.32	1.69

Table 5

Stillhouse Hollow Reservoir  
Annual Netting Results, 1970-1971  
Sixty Standard Gill Nets

Species	Number	Per Cent by No.	Weight in Pounds	Per Cent by Weight
Spotted gar*	13	.84	16.19	1.09
Longnose gar*	66	4.23	110.13	7.42
Gizzard shad*	274	17.64	57.82	3.89
Smallmouth buffalo*	17	1.09	55.37	3.73
River carpsucker*	53	3.39	190.96	12.86
Gray redhorse sucker*	196	12.57	239.63	16.14
European carp*	239	15.33	282.12	18.99
Channel catfish	64	4.10	200.90	13.53
Black bullhead*	34	2.18	11.44	.77
Yellow bullhead*	17	1.09	4.44	.29
Flathead or yellow catfish	16	1.03	96.25	6.48
White bass	14	.89	13.19	.89
Largemouth bass	76	4.87	117.01	7.88
Texas spotted bass	15	.96	6.81	.46
Warmouth	7	.44	1.50	.10
Green sunfish	28	1.79	3.71	.25
Redear sunfish	13	.83	2.05	.14
Bluegill sunfish	277	17.76	36.81	2.48
Longear sunfish	50	3.20	4.68	.32
White crappie	85	5.45	33.26	2.24
Freshwater drum*	5	.32	.87	.05
<b>Total</b>	<b>1,559</b>	<b>100.00</b>	<b>1,485.14</b>	<b>100.00</b>
Rough Fish*	914	58.63	968.97	65.25
Game Fish	270	17.32	467.42	31.47
Sunfish	375	24.05	48.75	3.28

fishing creel. No fishery management is necessary at this time, but basic inventory data should continue to be collected for at least two more segments so that when the sports fishing peak is reached, appropriate management practices can be instituted to prolong this peak.

#### Fish Harvest Regulations

Existing fish harvest regulations are considered to be adequate for the current fishery resources; therefore, no changes are recommended.

#### Vegetation Control

The impoundments surveyed this segment contained only sparse amounts of aquatic vegetation; therefore, no control measures were necessary.

#### Recommendations:

1. Since Canyon Reservoir contains such a high gizzard shad population, it is recommended that another attempt be made to establish walleye pike as soon as possible.
2. Decker Lake contains unusually large populations of various sunfish species and black bullheads. To control these undesirable species, it is recommended that an attempt be made to establish flathead catfish in the lake.
3. No management recommendations are necessary for Lake Inks at present.
4. It is recommended that renovation (either chemical or mechanical) of Lake Lyndon B. Johnson be carried out while it is reduced in size. This recommendation is believed to be justified because of the current unbalanced fish population that exists and the apparent decline of angling success on the lake.
5. No management recommendations are necessary for Stillhouse Hollow Reservoir at this time, but monitoring of population trends should be continued for at least two more segments since this reservoir is relatively new and basic inventory data will be necessary for future management purposes.
6. It is recommended that this job be continued so that other waters which are candidates for management practices can be located and the appropriate practices instituted.

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Date: June 7, 1972

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