Report of Fisheries Investigations

Resurvey and Appraisal of Several Public Waters in Region 3-B, Texas

by

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Dingell-Johnson Project F-5-R-6, Job B-22
April 16, 1958 - April 16, 1959

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Job Completion Report

State of TEXAS

Project No. F-5-R-6 Name: Fisheries Investigations and Surveys of the Waters of Region 3-B.

Job No. B-22 Title: Resurvey and Appraisal of Several Public Waters in Region 3-B, Texas.

Period Covered: April 16, 1958 to April 16, 1959

Abstract:

Ninety-five gill net collections and fourty-eight seining collections were taken for maintenance of data on waters previously surveyed. Streams were more productive in total fish life, but there was little change in numerical dominance. Improvement of game fish populations in streams is considered to be of a temporary nature. Lakes were not significantly improved and the decline in the fishery yield at Lake J. B. Thomas was particularly significant. The fish population of Mountain Creek Reservoir should be eradicated and the lake restocked with hatchery fish to improve fishing. Excessive vegetation in Lake Nasworthy should be controlled.

Objectives:

To determine the present status of waters and fish populations which have been previously surveyed in Region 3-B, under Project F-5-R.

Procedure:

Two watersheds and eight reservoirs were resurveyed during the year. Ninety-five netting collections were made. One net set in one location for one twenty-four hour period is recorded as a netting collection. Experimental nylon gill nets, measuring 125 feet in length by eight feet in depth and made up in five 25-foot sections were used. Mesh sizes of these nets increased progressively in each following section at one-half inch intervals, beginning with one-inch mesh and terminating with a three-inch mesh section. Seining collections were made with common sense type seines.

Findings:

Concho River Watershed

Seining at seven localities in the Conchos indicated that there was a greater abundance of fish life than in previous years, and that game species, primarily largemouth bass and channel catfish, were increasing in some localities. This favorable trend, however, is entirely dependent upon the longevity of increased rainfall, and the resulting increase in water volume and stability. Seepage is significant in contributing to this condition and will be of significance only so long as near average rainfall occurs, and is precipitated in a manner similar to that occurring during the present

year. Although the annual rainfall has increased during the year, run-off is actually less than in the 1957-58 period. An increase in ground cover resulting from soil utilization practices such as the "soil bank program", and from natural spreading from the increased 1957 rainfall, is responsible.

Undesirable species have increased numerically if not by percent. The net gain in the total fishery resource is significant, but the basic fishery problem of domination by undesirable species is at best only temporarily relieved.

San Angelo Reservoir

Twelve netting and six seining collections were taken. By percent, undesirable species have not increased during the year. White crappie show significant increases and largemouth bass show a decrease. The gizzard shad population is believed to be more numerous than indicated, and white bass may have increased more than netting results would imply. The present population ratio's are apparently not providing a satisfactory fishery yield, however, the practicality of attempting management procedures at this time is doubted.

Lake Nasworthy

Seining was done at six locations on the reservoir. Of the two basic fishery problems for this reservoir, domination by undesirable species and excessive vegetation, management effort is recommended for the latter. The construction of a new reservoir appears to be certain. This new impoundment would be above Lake Nasworthy on the Concho Watershed and may be completed in the next few years. Until that construction is finally approved it is not deemed desirable to attempt to control the fishery populations. Bulrushes and cattails have increased during the past twelve months by more than 37 percent and now prohibit access to about 40 percent of the lake's shore areas for fishing. For that reason control of this vegetation is given priority in management and development work.

Upper Colorado River Watershed

Six seining collections were taken at locations on the river near San Angelo. Rainfall breaking the drouth in 1957 and a subsequent tremendous increase and expansion of the vegetative cover on the contributing watershed for the Upper Colorado River has resulted in ground water increases, seepage contribution to streamways, stability of flow from run-off, and a sustained increase in volume in stream pools. This condition has produced a greater production of fish life. This was especially true for desirable forage species such as redhorse shiners and game species such as flathead and channel catfish. There was no noticeable increase percentagewise in the undesirable species, although, river carpsuckers, carp and others increased in numbers.

Lake J. B. Thomas

Forty-eight netting collections and thirteen seining collections were made. The rapidity with which desirable game fish populations may reduce to a sub-dominant position to undesirable species is apparently demonstrated by netting collections from this lake for this year. Fourteen months following the completion of the initial survey work at this reservoir, river carpsuckers had increased numerically from 4.60 percent to 14.94 percent, gizzard shad had increased from 36.23 percent to 49.72 percent, and carp had increased from 0.24 percent to 2.78 percent. Largemouth bass decreased during the same

period from 3.47 percent to 0.52 percent, white crappie from 14.59 percent to 2.97 percent, flathead catfish from 5.56 percent to 0.82 percent, and sunfishes from 7.76 percent to 1.32 percent. Only white bass and channel catfish showed increases numerically, and channel catfish showed a loss in condition. Undesired and excessive populations of gar, shad, carpsuckers, redhorses, and carp made up a total of 42.63 percent of the total fish populations in 1957. In 1958 this game group totaled 67.44 percent. In 1957 channel catfish, flathead catfish, largemouth bass, white bass, white crappie and sunfishes made up 52.09 percent of the total populations. In 1958 this group made up 32.35 percent of the lakes fishery populations. In addition to channel catfish showing a loss of condition over the period, white crappie were also in less desirable condition. Rough fish increased 23.81 percent while game species were being reduced 19.74 percent.

Oak Creek Reservoir

Twelve netting collections and four seining collections were taken. Significant and relatively rapid increases in river carpsuckers from 15.08 percent to over 42.55 percent as shown in the table may be a result of not having obtained a sufficiently large sample from this reservoir. However, there is little doubt that this species has increased into a critical management problem. The increase in white bass from 1.89 percent to 8.51 percent was about as anticipitated. Although the largemouth bass population decreased slightly the past twelve months, it has produced excellent fishing for this species, and the general condition of the population is good.

Mountain Creek Reservoir

Nine gill net sets and five seining collections were made. This reservoir was netted for the first time during the segment with the results shown on the chart. It is recommended that an eradication program be put into effect as soon as circumstances will permit or justify.

Lake Brownwood

Six gill net sets and five seining collections were made. This reservoir maintains a fairly high fishery yield and there were no significant changes in the fishery populations.

Clear Fork of the Brazos Watershed

Resurvey work is as included under job completion report for this job.

Ft. Phantom Hill Reservoir

Eight gill nets and five seining collections were taken. Evidence obtained during the segment supported previous findings that this is a borderline case as far as fishery management is concerned. However, the excellent fishery yield from Lake Abilene is regarded as supporting evidence to justify control measures since the area fishermen would not be inconvenienced to the extent previously feared. (i.e. they would have a good place to fish while control measures were in the process of bringing about improvement in Ft. Phantom Hill's fishery populations.)

Summary:

1. Ninety-five (95) gill net collections and forty-eight (48) seining collections were made in waters previously surveyed to maintain data on the fishery populations.

2. Temporary fishery improvement was evidenced in San Angelo Reservoir and in the Concho and Upper Colorado River watersheds.

3. Excessive vegetation has become critical in Lake Nasworthy and in other public waters in Tom Green County. Control measures are needed and recommended.

4. Mountain Creek Reservoir at Robert Lee is dominated by undesirable species and should be eradicated and restocked when time will permit and circumstances justify.

5. Oak Creek Reservoir continues to produce desirable fishing as does Lake J. B. Thomas, however, there is a marked decline in the productivity of the latter reservoir.

6. Lake Brownwood maintaines a desirable fishery yield, however, the lakes production is far below its potential resource.

7. Ft. Phantom Hill Reservoir is regarded as a borderline case and any increase in undesirable species will warrant serious consideration of a management effort to control these fish.

Recommendation:

Resurvey work should be continued on as many of the waters previously surveyed as time will permit. Control work on the vegetation in Lake Nasworthy should be done at the earliest possible date. Mountain Creek Reservoir should be eradicated when circumstances will justify and time will permit.

Prepared by Lawrence Campbell
Project Leader

Approved by Marion Toole
Director Inland Fisheries Division

Date September 9, 1959

Netting Collections for San Angelo Reservoir

From April 16, 1958 thru April 16, 1959

Species	No.	% by No.	Total Wt. (oz)	Avg Wt. (oz)	% by Wt.	Avg. K
Longnose gar	7	1.97	476	68.0	9.98	.632
Gizzard shad	122	34.36	671	5.5	14.08	1.33
Smallmouth buffalo	2	.57	124	62.0	2.60	2.78
River carpsuckers	68	19.15	1,428	21.0	29.95	2.24
Grey redhorses	21	5.92	399	19.0	8.37	1.88
Carp	13	3.66	494	38.0	10.37	1.97
Channel catfish	14	3.94	98	7.0	2.05	1.68
Bullheads	17	4.79	85	5.0	1.79	1.82
White bass	32	9.02	608	19.0	12.75	2.10
Largemouth bass	1	.28	24	24.0	.50	2.19
Sunfishes	16	4.50	72	-	1.51	4./
White crappie	38	10.71	228	6.0	4.79	3.08
Freshwater drum	4	1.13	60	15.0	1.26	1.84
Totals	355	100.00	4,767		100.00	

Netting Collections for Lake Brownwood

From April 16, 1958 thru April 16, 1959

Species	No.	% by No.	Total Wt. (oz)	Avg. Wt. (oz)	% by Wt.	Avg. K.
Longnose gar	1	4.05	198	198	13.15	.469
Gizzard shad	47	31.75	94	2	6.23	1.39
Smallmouth buffalo	24	16.21				Data lost
River carpsuckers	17	11.48	510	30	33.84	2.26
Carp	3	2.03	69	23	4.57	1.96
Channel catfish	11	7.45	198	18	13.15	1.68
White bass	11	7.45	308	28	20.44	2.08
White crappie	14	9.45	70	5	4.64	4.12
Freshwater drum	15	10.13	60	4	3.98	2.16
Totals	143	100.00	1,507		100.00	

Netting Collections for Ft. Phantom Hill

From April 16, 1958 thru April 16, 1959

Species	No.	% by No.	Total Wt. (oz)	Avg. Wt. (oz)	% by Wt.	Avg. K
Gizzard shad	21	10.71	231	11	7.68	1.29
Smallmouth buffalo	4	2.04	31	8	1.20	3.24
River carpsuckers	38	19.39	684	18	22.75	2.08
Carp	12	6.13	468	39	15.57	2.56
Channel catfish	29	14.80	551	19	18.33	1.72
Flathead catfish	2	1.02	298	149	9.91	1.86
White bass	27	13.77	351	13	11.68	2.24
Largemouth bass	4	2.04	84	21	2.80	2.10
Sunfishes	38	19.39	152	4	5.05	4.4
White crappie	19	9.69	133	7	4.43	3.18
Freshwater Drum	2	1.02	18	9	.60	1.76
Totals	196	100.00	3,001		100.00	

Netting Collections for Mountain Creek Reservoir

From April 16, 1958 thru April 16, 1959

Species	No.	% by No.	Total Wt. (oz)	Avg. Wt. (oz)	% by Wt.	Avg. K
River carpsuckers	105	51.21	4,515	43.0	88.66	2.26
Golden shiners	61	29.75	203	3.3	3.98	
Channel catfish	6	2.94	216	36.0	4.24	1.97
Bullheads	10	4.87	50	5.0	0.98	2.10
Largemouth bass	1	0.48	29	29.0	0.56	1.83
Sunfishes	16	7.81	52	3.25	1.01	44 -
White crappie	6	2.94	27	4.5	0.57	3.18
Totals	205	100.00	5,092		100.00	

Netting Collections for Oak Creek Reservoir

From April 16, 1958 thru April 16, 1959

Species	No.	% by No.	Total Wt. (oz)	Avg. Wt. (oz)	% by Wt.	Avg. K
River carpsuckers	80	42.55	1,600	20	63.87	2.26
Carp	1	0.53	69	69	2.75	1.97
Channel catfish	6	3.19	270	45	10.77	1.84
White bass	16	8.51	320	20	12.05	2.21
Largemouth bass	4	2.12	84	21	3.35	1.94
Sunfishes	70	37.24	140	2	6.34	4/
White crappie	11	5.86	22	2	0.87	3.18
Totals	188	100.00	2,505		100.00	

Netting Collections for J. B. Thomas Lake

From April 16, 1958 thru April 16, 1959

Species	No.	% by No.	Total Wt. (oz)	Avg. Wt. (oz)	% by Wt.	Avg. K
Gizzard shad	785	49.72	4,710	6	24.10	1.62
River carpsuckers	236	14.94	4,956	21	25.36	2.64
Carp	44	2.78	1,496	34	7.66	2.54
Channel catfish	216	13.67	3,024	14	15.47	1.82
Flathead catfish	13	0.82	819	63	4.19	1.86
White bass	206	13.05	4,120	20	21.08	2.84
Largemouth bass	8	0.54	208	26	1.07	1.98
Sunfishes	21	1.32	42	2	0.21	4/
White crappie	47	2.97	94	2	0.48	3.64
Freshwater drum	3	0.19	75	25	0.38	2.27
Totals	1,579	100.00	19,544		100.00	

Lake J. B. Thomas

Specific Population Data for Comparative and Analytical Purposes

Species	No.	%	Total Wt. (oz)	% by Wt.
Excessive Populations for Undesired Species:				
Gizzard shad	785	73.70	4,710	42.19
River carpsuckers	236	22.15	4,956	44.40
Carp	44	4.15	1,496	13.41
Totals	1,065	100.00	11,162	100.00
Desirable Species and Game Fish:				
Largemouth bass	8	1.67	208	2.79
White bass	206	43.18	4,120	55.33
White crappie	47	9.87	94	1.26
Channel catfish	216	45.28	3,024	40.62
Totals	477	100.00	7,446	100.00
Excessive or Undesirable Species:				
Totals	1,065	69.06	11,162	59.98
Game Fish				
Totals	477	30.94	7,446	40.02
Grand Totals	1,542	100.00	18,608	100.00