

SEGMENT COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-5-R-14

REGION 1-A FISHERIES STUDIES

Job No. 5 Stocking Recommendations

Project Leader: Billy J. Follis

J. R. Singleton
Executive Director
Parks and Wildlife Department
Austin, Texas

Marion Toole
D-J Coordinator

Eugene A. Walker
Director, Wildlife Services

March 22, 1967

ABSTRACT

Hydrological data, visual observations, seining and netting collections, and prior biological data were used to determine which public waters of Region I-B required stocking from State fish hatcheries. Recommendations were made to stock two lakes with both largemouth bass and channel catfish fingerlings, four lakes with bass fingerlings, and two lakes with catfish fingerlings. Five other impoundments did not require stocking because present carrying capacity was utilized primarily by rough fish species.

SEGMENT COMPLETION REPORT

State of Texas

Project No. F-5-R-14

Name: Region 1-B Fisheries Studies

Job No. 5

Title: Stocking Recommendations

Period Covered: March 1, 1966 to February 28, 1967

Objectives:

To determine those waters which would benefit from stocking.

Procedures:

Public reservoirs were checked to determine where expansion or diminution had occurred. Some hydrological readings were obtained from pertinent agencies, while the other elevations were estimates based on spillways, water outlet gauges or other permanent land marks.

Seines and gill nets were used to estimate the abundance of young game fish as well as the amount of small forage species present. The size of seines used varied slightly with water level and topography at various reservoirs, but specific dimensions are given with each seining table. The standard gill nets used were comprised of six 25 by 8-foot sections, the first section having 1-inch mesh and the mesh in each succeeding section being increased by $\frac{1}{2}$ -inch. The number of gill nets set at each lake deviated slightly from the job description schedule due to water level fluxuation and time of survey.

Data obtained under Job 4 were perused, along with the information compiled under this job, to determine which public lakes would benefit from stocking. Stocking recommendations are given in Table 1.

A check list of scientific names is presented so that common names may be used in this report. These names are specified in "A List of Common and Scientific Names of Fishes from the United States and Canada", Second Edition, American Fisheries Society, Special Publication Number 2, 1960.

Longnose gar
Gizzard shad
Carp
Golden shiner
Red shiner
Blacktail shiner
Fathead minnow
Bullhead minnow
River carpsucker
Smallmouth buffalo
Black bullhead
Channel catfish
Flathead catfish
Mosquitofish

Lepisosteus osseus
Dorosoma cepedianum
Cyprinus carpio
Notemigonus crysoleucas
Notropis lutrensis
Notropis venustus
Pimephales promelas
Pimephales vigilax
Carpiodes carpio
Ictiobus bubalus
Ictalurus melas
Ictalurus punctatus
Pylodictis olivaris
Gambusia affinis

White bass
Warmouth
Redbreast sunfish
Green sunfish
Orangespotted sunfish
Bluegill
Longear sunfish
Redear sunfish
Largemouth bass
White crappie
Logperch
Freshwater drum

Roccus chrysops
Chaenobryttus gulosus
Lepomis auritus
Lepomis cyanellus
Lepomis humilis
Lepomis macrochirus
Lepomis megalotis
Lepomis microlophus
Micropterus salmoides
Pomoxis annularis
Percina caprodes
Aplodinotus grunniens

FINDINGS:

Table 1

A Compilation of Hydrological and Fish Population Data and the Resultant Stocking Request of the 1967 Stocking Season

Lake	Population Findings		Hydrological Conditions	Abundance of Young		Stocking Request
	Job	Tables		Bass	Catfish	
Champion Creek	5	2&3	Water level 14' below spillway when surveyed, has never filled to its 41,670 acre-foot capacity.	Common (B&C)	Common (A&E)	10,000 Catfish Fing. (D&F)
Colorado City	5	4&5	Lake nearly full, maintained relatively constant.	Common (B&D)	Common (A&D)	None
J. B. Thomas	5	6&7	Water level 11' below spillway when surveyed, has dropped some since then.	Rare (A&B)	Abundant (A.B.&E)	20,000 Bass Fing. (F&H)
Mountain Creek	5	8&9	Water level within 1' of spillway when seined, 5' low in spring when netted.	Common (A)	Rare (A&D)	2,000 Bass Fing. (G&J) 2,000 Catfish Fing. (G&J)
Nasworthy	5	10&11	Water level maintained fairly constant, within 3' of spillway.	Abundant (B&D)	Rare (A&D)	20,000 Catfish Fing. (A.D.&J)
Oak Creek	5	12&13	30,000 acre-feet at time of survey, at conservation level contains 40,000 acre-feet.	Common (A&B)	Common (A&D)	None
San Angelo	5	14&15	Contained 19,000 acre-feet when surveyed, has been this low for several years. Normal capacity is 119,200 acre-feet.	Rare (B&D)	Abundant (A.B.&D)	10,000 Bass Fing. (H)
Twin Buttes	5	16&17	Varies considerably, 10,000 acre-feet when surveyed, conservation pool capacity 170,000 acre-feet.	Common (A.B.&C)	Common (A&D)	10,000 Bass Fing. (H) 20,000 Catfish Fing. (H)
Winters, Old	5	18&19	Water level 4' below spillway.	Common (A&B)	Common (A&D)	1,000 Bass Fing. (J)

Table 1 Continued

A Compilation of Hydrological and Fish Population Data
and the Resultant Stocking Request of the 1967 Stocking Season

Lake	Population Findings		Hydrological Conditions	Abundance of Young		Stocking Request
	Job	Tables		Bass	Catfish	
Winters, New	5	20&21	Water level 2' below spillway, usually varies 1 to 4' below spillway.	Rare (A.B.&D)	Common (A&B)	None (I)
Elm Creek	4	4	Full when surveyed, 350 acre-feet capacity. Flows over dam frequently.	Rare (A.B.&D)	Rare (A.D.&E)	None (I)
Moss Creek	4	2	2' below spillway when surveyed, varies between 4' low and spillway level.	Abundant (A.B.&C)	Abundant (A&D)	None
Valley Creek	4	3	Full when surveyed, fairly constant, 210 S.A. capacity.	Common (A&B)	Abundant (A&E)	3,000 Bass Fing. (J)

1/ Key

- A. Netting results.
- B. Seining results.
- C. Visual Observation.
- D. Creel reports.
- E. Prior biological samples.
- F. Increased water area.
- G. Scarcity of game fish.
- H. Probability of runoff great because of large watershed.
- I. Carrying capacity utilized by undesirable fish.
- J. Abundant food supply for game fish.

Table 2

Seining Collections From Champion Creek Reservoir
on November 14, 1966

(2 drags with a 100' by 8' by 1/2-inch mesh seine)
(10 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Red shiner	13	1 1/2-2
Blacktail shiner	127	1 1/2-6
Fathead minnow	2	1 1/2
Mosquitofish	6	1-1 1/2
Green sunfish	3	1
Bluegill	17	1-2
Largemouth bass	3	3-6
Total	171	

Table 3

Results of Four Gill Nets Set in Champion Creek Reservoir
on November 15, 1966

Water Temperature: 60° F. Secchi - 52 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "k"
Golden shiner	1	1.49	.20	.20	.80	
Black bullhead	8	11.94	10.35	1.29	41.87	
Channel catfish	3	4.48	1.46	.49	5.91	1.88
White bass	2	2.98	2.51	1.25	10.15	2.03
Bluegill	50	74.64	8.26	.16	33.42	3.96
Largemouth bass	1	1.49	1.50	1.50	6.07	2.62
White crappie	2	2.98	.44	.22	1.78	2.40
Totals	67	100.00	24.72		100.00	

Table 4

Seining Collections From Colorado City Lake
on November 16, 1966

(2 drags with a 100' by 8' by 1/2-inch mesh seine)
(10 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	352	2-7
Carp	3	7-8
Golden shiner	13	1 1/2-4
Red shiner	4	1-1 1/2
Blacktail shiner	17	2-3 1/2
Bullhead minnow	22	1-2
Channel catfish	1	5
Mosquitofish	8	1-2
Green sunfish	11	1-4
Bluegill	73	1-4
Longear sunfish	4	2-3
Redear sunfish	16	1 1/2-3
Largemouth bass	10	1-8
Logperch	3	3-3 1/2
Total	537	

Table 5

Results of Four Gill Nets Set in Colorado City Lake
on November 16, 1966

Water Temperature: 63° F. Secchi - 16 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	43	45.74	11.06	.26	11.98	
Carp	6	6.38	8.37	1.39	9.07	
River carpsucker	2	2.13	2.62	1.31	2.84	
Channel catfish	8	8.51	8.50	1.06	9.21	1.69
Flathead catfish	7	7.45	41.68	5.95	45.17	1.97
White bass	9	9.57	10.91	1.21	11.82	3.12
Bluegill	2	2.13	.15	.07	.16	3.90
Largemouth bass	1	1.06	.42	.42	.46	2.48
White crappie	16	17.03	8.57	.53	9.29	3.28
Totals	94	100.00	92.28		100.00	

Table 6

Seining Collection from J. B. Thomas Lake
on September 16, 1966

(4 drags with a 100' by 8' by 1/2-inch mesh seine)
(12 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	257	3-8
Red shiner	46	1 1/2-3
Blacktail shiner	4	1 1/2-2 1/2
River carpsucker	1	5
Channel catfish	7	4-8
Bluegill	13	2-4 1/2
Longear sunfish	6	3-5
White crappie	8	3-7
Total	342	

Table 7

Results of Six Gill Nets Set in J. B. Thomas Lake
on September 16, 1966

Water Temperature: 74° F. Secchi - 6 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	21	17.79	2.77	.13	2.40	
Carp	15	12.71	25.92	1.73	22.54	
River carpsucker	29	24.58	29.85	1.03	25.95	
Channel catfish	13	11.02	11.65	.90	10.12	1.82
Flathead catfish	4	3.39	26.18	6.55	22.76	2.06
White bass	3	2.54	3.10	1.03	2.70	2.64
Bluegill	3	2.54	.59	.20	.51	4.47
Largemouth bass	5	4.24	10.18	2.04	8.85	2.67
White crappie	8	6.78	2.57	.32	2.24	2.53
Freshwater drum	17	14.41	2.22	.13	1.93	
Totals	118	100.00	115.03		100.00	

Table 8

Seining Collection From Mountain Creek Reservoir
on November 7, 1966

(4 drags with a 30' by 6' by 1/4-inch mesh seine)
(4 drags with a 20' by 6' by 1/8-inch seine)

Species	Number	Size Range in Inches
Golden shiner	223	2-8
Bluegill	5539	1-4
Redear sunfish	3505	1-3
Total	9267	

Table 9

Results of Two Gill Nets Set in Mountain Creek Reservoir
on March 23, 1966

Water Temperature: 57° F. Secchi - 24 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Golden shiner	29	42.02	4.99	.17	22.07	
Flathead catfish	1	1.45	5.62	5.62	24.87	2.45
Warmouth	2	2.90	.41	.21	1.82	3.32
Green sunfish	3	4.35	.35	.12	1.54	3.15
Bluegill	26	37.68	2.86	.11	12.66	3.56
Largemouth bass	7	10.15	8.04	1.15	35.57	2.42
White crappie	1	1.45	.33	.33	1.47	2.53
Totals	69	100.00	22.60		100.00	

Table 10

Seining Collection From Nasworthy Lake
on July 21, 1966

(4 drags with a 100' by 8' by 1/2-inch mesh seine)
(10 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	920	1-8
Carp	34	15-20
Golden shiner	41	1-3
Green sunfish	1	2 1/2
Orangespotted sunfish	4	1 1/2-2 1/2
Bluegill	503	1-5
Redear sunfish	98	1-6
Largemouth bass	43	2-6
Total	1644	

Table 11

Results of Four Gill Nets Set in Nasworthy Lake
on July 22, 1966

Water Temperature: 88° F. Secchi - 23 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	4	1.74	5.06	1.27	6.42	
Gizzard shad	120	52.40	20.93	.17	26.58	
Carp	15	6.55	21.56	1.44	27.38	
Black bullhead	48	20.96	8.46	.18	10.75	
Channel catfish	4	1.75	14.23	3.56	18.07	1.81
Flathead catfish	1	.44	4.43	4.43	5.63	1.72
Bluegill	9	3.93	.77	.09	.97	2.91
White crappie	26	11.35	2.79	.11	3.55	2.02
Freshwater drum	2	.88	.51	.26	.65	
Totals	229	100.00	78.74		100.00	

Table 12

Seining Collections From Oak Creek Reservoir
on August 9, 1966

(2 drags with a 100' by 8' by 1/2-inch mesh seine)
(10 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	105	1-4
Golden shiner	17	1 1/2-2 1/2
Blacktail shiner	22	1 1/2-2
Mosquitofish	3	1-1 1/2
Redbreast sunfish	2	2-2 1/2
Green sunfish	1	3 1/2
Bluegill	26	1-3
Longear sunfish	15	2-3 1/2
Largemouth bass	10	2-3
White crappie	14	2 1/2-4 1/2
Logperch	2	2-3
Total	217	

Table 13

Results of Six Gill Nets Set in Oak Creek Reservoir
on August 10, 1966

Water Temperature: 89° F. Secchi - 77 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	127	68.64	19.43	.15	17.97	
Carp	9	4.87	17.93	1.99	16.58	
River carpsucker	10	5.40	17.25	1.73	15.96	
Black bullhead	1	.54	.12	.12	.11	
Channel catfish	4	2.17	6.79	1.70	6.28	1.61
Flathead catfish	3	1.62	28.75	9.58	26.59	1.93
White bass	6	3.24	8.26	1.38	7.64	2.87
Green sunfish	1	.54	.10	.10	.10	3.33
Bluegill	7	3.79	.48	.07	.44	3.11
Largemouth bass	3	1.62	1.54	.51	1.42	1.75
White crappie	14	7.57	7.46	.53	6.91	2.39
Totals	185	100.00	108.11		100.00	

Table 14

Seining Collections From San Angelo Reservoir
on July 26, 1966

(4 drags with a 100' by 8' by ½-inch mesh seine)
(12 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	1971	1-12
Carp	4	8-14
Red shiner	363	1-2
Bullhead minnow	140	1-2½
River carpsucker	3	3-5
Channel catfish	2	2-3½
White bass	4	2½-3
Redbreast sunfish	5	2-3½
Orangespotted sunfish	2	2½
Bluegill	2	2½-3
Longear sunfish	10	2-3½
Largemouth bass	4	3-8
White crappie	7	2-4½
Total	2517	

Table 15

Results of Four Gill Nets Set in San Angelo Reservoir
on July 27, 1966

Water Temperature: 90° F. Secchi - 12 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	9	6.66	15.37	1.71	16.76	
Gizzard shad	56	41.48	6.18	.11	6.74	
Carp	10	7.41	13.56	1.36	14.78	
River carpsucker	19	14.07	32.87	1.73	35.85	
Smallmouth buffalo	2	1.49	1.06	.53	1.15	
Channel catfish	6	4.44	6.02	1.00	6.57	1.35
White bass	28	20.73	14.88	.53	16.23	2.29
Bluegill	1	.75	.07	.07	.07	2.93
White crappie	3	2.22	.25	.08	.27	2.48
Freshwater drum	1	.75	1.44	1.44	1.58	
Totals	135	100.00	91.70		100.00	

Table 16

Seining Collections From Twin Buttes Reservoir
on September 12, 1966

(2 drags with a 100' by 8' by 1/2-inch mesh seine)
(24 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	475	2-6
Carp	1	12
Golden shiner	1	2
Red shiner	34	1-2 1/2
Blacktail shiner	2	1-1 1/2
Bullhead minnow	112	1-2
River carpsucker	4	4-6
White bass	3	2-8
Redbreast sunfish	11	2-6
Orangespotted sunfish	1	2
Bluegill	25	1-5
Longear sunfish	2	1 1/2-3
Largemouth bass	2	1 1/2-5
Total	673	

Table 17

Results of Six Gill Nets Set in Twin Buttes Reservoir
on September 13, 1966

Water Temperature: 73° F. Secchi - 36 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	3	1.07	13.93	4.64	8.92	
Gizzard shad	128	45.71	21.29	.17	13.64	
Carp	19	6.79	39.76	2.09	25.47	
River carpsucker	35	12.50	49.53	1.42	31.74	
Black bullhead	7	2.50	1.27	.18	.81	
Channel catfish	7	2.50	4.90	.70	3.14	1.56
White bass	9	3.21	10.24	1.14	6.56	2.79
Redbreast sunfish	1	.36	.09	.09	.06	2.56
Bulegill	14	5.00	1.17	.08	.75	3.36
Largemouth bass	11	3.93	3.54	.32	2.27	2.30
White crappie	30	10.71	6.10	.20	3.91	2.75
Freshwater drum	16	5.72	4.26	.27	2.73	
Totals	280	100.00	156.08		100.00	

Table 18

Seining Collections From Old Winters Lake
on March 7, 1966

(6 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	40	3-6
Carp	1	8
Golden shiner	1	3
Red shiner	19	1½-3½
Green sunfish	3	3
Bluegill	51	2-3
Largemouth bass	12	2½-6
Total	127	

Table 19

Results of Two Gill Nets Set in Old Winters Lake
on March 8, 1966

Water Temperature: 47° F. Secchi - 14 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	25	73.51	3.54	.14	41.59	
Channel catfish	3	8.83	1.25	.42	14.69	1.53
Largemouth bass	3	8.83	3.31	1.10	38.90	2.64
White crappie	3	8.83	.41	.14	4.82	2.53
Totals	34	100.00	8.51		100.00	

Table 20

Seining Collection From New Winters Lake
on August 8, 1966

(4 drags with a 100' by 8' by ½-inch mesh seine)
(8 drags with a 20' by 6' by 1/8-inch mesh seine)

Species	Number	Size Range in Inches
Gizzard shad	691	1-12
Carp	2	18-20
Golden shiner	130	1-2½
Red shiner	3	1½-2
Mosquitofish	120	1-1½
Channel catfish	6	4-6
Green sunfish	22	2-4
Orangespotted sunfish	40	1-3½
Blue gill	56	1-4
Longear sunfish	9	1½-3½
Largemouth bass	15	3-6
White crappie	178	1½-6
Freshwater drum	1	4
Total	1273	

Table 21

Results of Four Gill Nets Set in New Winters Lake
on August 9, 1966

Water Temperature: 88° F. Secchi - 6 inches

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	89	47.59	22.87	.26	39.26	
Carp	2	1.07	8.06	4.03	13.84	
River carpsucker	4	2.14	2.12	.53	3.64	
Black bullhead	56	29.94	14.75	.26	25.33	
Channel catfish	3	1.61	1.77	.59	3.04	1.21
Bluegill	2	1.07	.13	.07	.22	2.58
White crappie	16	8.55	1.54	.10	2.65	1.85
Freshwater drum	15	8.03	7.00	.47	12.02	
Totals	187	100.00	58.24		100.00	

Discussion:

Several factors other than the relative abundance of game fish and the current lake levels must be considered before stocking recommendations can be made.

Prior records indicate that the survival of channel catfish fry is lower in clear water reservoirs than in turbid waters. Also, it is noted that the reproductive success of largemouth bass is quite often inadequate in turbid waters. In some instances, fishing pressure from the general public will affect the fish population of a particular lake.

The benefits derived from stocking largemouth bass fry in waters with established fish populations are questionable. Therefore, recommendations concluded from this job will exclude the stocking of fry, with the exception of new or renovated waters.

Recommendations:

Specific recommendations for the 1967 stocking season are given in Table 1. It is also recommended that this job be continued in pursuit of a more beneficial stocking program for the public waters of Region I-B.

Prepared by Billy J. Follis
Project Leader

Approved Marion Toole
Coordinator

Date: March 22, 1967

Leo D. Lewis
Inland Fisheries Supervisor

The first part of the document discusses the importance of maintaining accurate records of all transactions.

It is essential to ensure that all data is entered correctly and that the system is regularly updated.

The second part of the document outlines the various methods used to collect and analyze data.

These methods include surveys, interviews, and focus groups, each with its own strengths and weaknesses.

The third part of the document describes the process of data analysis and the tools used to facilitate this process.

Finally, the document concludes with a summary of the key findings and recommendations for future research.