PROJECT SEGMENT COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-3-R-18

Region III-B Fisheries Studies

Job No. 15 Fishery Management Recommendations

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ABSTRACT

A preliminary meeting of Department field biologists, game management officers, and supervisory personnel was held in Palestine on April 24, 1970, to discuss proposed regulation changes for the Northeast Texas, Southeast Texas, and Trinity-Brazos Regulatory Areas. Public hearings were held in all regulatory counties within Region III-B during June 1-5, 1970, for the presentation of proposed proclamations. A recommendation was made to close Sam Rayburn Reservoir to commercial netting except by State contract for the protection of the flathead catfish. This proposal was passed into law and is now in effect. Quarterly field collections were again conducted on seven major reservoirs in regulatory areas of Region III-B. These reservoirs include Sam Rayburn, B. A. Steinhagen, Murvaul, Striker, Palestine, Caddo, and Toledo Bend.

Management recommendations derived from 1970 segment field data include:

1. Continued contract netting on Sam Rayburn.
2. No additional stocking of game fish in Sam Rayburn.
3. A fall water drawdown on B. A. Steinhagen for vegetation control.
4. No additional stocking in Steinhagen.
5. Continuation of contract netting in Steinhagen.
6. Continuation of channel catfish stocking in Murvaul.
7. No commercial netting of any type in Murvaul.
8. Additional stocking of threadfin shad in Lake Striker.
9. No additional stocking of game fish in Striker.
10. Additional stocking of game fish in Palestine with third stage.
11. No contract netting in Palestine until conservation pool level is reached.
12. Spot treatment of water hyacinths on Caddo Lake.
13. No additional stocking on Caddo Lake.
14. No additional stocking on Toledo Bend.

It is recommended that this study be continued to provide valid fish harvest regulations through current population sampling data, vegetation control needs and stocking needs where feasible. Field data compiled from this study are vital in continuing these important objectives.

SEGMENT COMPLETION REPORT

State Texas Name: Fisheries Investigations and Surveys

Project No. F-3-R-18 of the waters of Region III-B.

Job No. 15 Title: Fishery Management Recommendations

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

OBJECTIVES:

P.S.: To determine, in Region III-B waters, the need for:

1. Changes in fish harvest regulations.
2. Fish population control.
3. Stocking of game fish species.
4. Noxious vegetation control.
5. Emergency measures needed to correct unpredictable events adversely affecting fish populations.

Segment: As above listed P.S. Objectives.

PROCEDURES:

1. A. Field data from quarterly surveys in Sam Rayburn Reservoir, B. A. Steinhagen Reservoir, Lake Murvaul, Lake Striker, Lake Palestine, Caddo Lake, and Toledo Bend Reservoir were analyzed to formulate needs for advantageous fishery regulations.

   B. Proposed fishery regulations will be presented at public hearings in regulatory authority counties within Region III-B.

2. Quarterly surveys were made on each of the above listed reservoirs this segment. Experimental gill nets and bag seines were utilized for making fish collections. Experimental nets used in these collections are 150 feet in length and 8 feet in depth, with square mesh ranging from 1 inch to 3-1/2 inches. Mesh size increased in 1/2-inch increments with every 25 feet. One 16-foot nylon bag seine with 1/4 inch mesh and a 32-foot bag seine with 3/8 inch mesh was used in seining collections.

3. Each of the candidate waters in this study contain established game fish populations. Criteria for making stocking recommendations consist primarily of food availability and degree of reproduction. Where field sampling indicates little or no successful reproduction, the normal stocking recommendation rate will be 100 bass fry or 50 bass fingerlings and 25 channel catfish per acre. Of course in large reservoirs such as Sam Rayburn and Toledo Bend, this rate cannot be feasibly maintained.

4. A. In conjunction with fisheries surveys, visual observations of aquatic vegetation were made and recorded to determine those areas infested with noxious plants detrimental to fisherman access and useage.

B. Control recommendations for such areas of noxious vegetation were made if feasible.

5. Whenever conditions or events that would threaten fish life come to the attention of project personnel, circumstances will be investigated and reported along with recommendations for remedial action.

FINDINGS:

A preliminary meeting was held in Palestine on April 24, between Parks and Wildlife field biologists, game management officers, and supervisory personnel for the discussion of proposed regulation changes in regulatory authority areas.

Inland Fisheries Region III-B includes counties in three regulatory authority areas: Northeast Texas Area, Southeast Texas Area and the Trinity-Brazos Area. A recommendation was made at this meeting to close Sam Rayburn Reservoir to netting except through State contract for the protection of the flathead catfish.

Public hearings were attended by project personnel in each regulatory county on June 1 through 5.

The following resumes and data tables are submitted for field activities on the seven major reservoirs included in this study. Table 1 is a checklist of fish species collected from all waters in 1970.

NOTE: Abbreviations are as follows:

SR	Sam Rayburn Reservoir
B	Dam B
M	Lake Murvaul
S	Lake Striker
P	Palestine
C	Caddo
T	Toledo Bend

TABLE 1

Scientific Name	Common Name	Location
Lepisosteus spatula	Alligator gar	SR
L. oculatus	Spotted gar	All
L. osseus	Longnose gar	SR, B, C, P, and T
Amia calva	Bowfin	SR, B, M, C, P, and T

(Table 1 continued on Page 3)

(Table 1 continued)

Scientific Name	Common Name	Location
Alosa chrysochloris	Skipjack herring	C
Dorosoma petenense	Threadfin shad	SR, B, and S
D. cepedianum	Gizzard shad	All
Esox americanus	Grass pickerel	T
E. niger	Chain pickerel	C
Ictiobus bubalus	Smallmouth buffalo	SR, B, C, P, and T
Carpiodes carpio	River carpsucker	SR and T
Moxostoma poecilurum	Gray redhorse	B
Minytrema melanops	Spotted sucker	All
Erimyzon sucetta	Lake chubsucker	SR, B, M, C, and T
Cyprinus carpio	Carp	SR, S, P, T
Notemigonus crysoleucas	Golden Shiner	SR, M, C, P, T
Notropis fumeus	Ribbon shiner	SR, B
N. chalybaeus	Ironcolor shiner	SR, B, M, C
N. texanus	Weed shiner	M
N. venustus	Blacktail shiner	SR, S, C, P
N. lutrensis	Red shiner	C
N. stramineus	Sand shiner	SR, B
Pimephales vigilax	Bullhead minnow	SR, B, S, M
Ictalurus punctatus	Channel catfish	All
I. furcatus	Blue catfish	B, T
I. melas	Black bullhead	SR, B, M, C, and T
I. natalis	Yellow bullhead	SR, B, M, C, P, and T
Pylodictis olivaris	Flathead catfish	B, S, C, P, T

(Table 1 continued on Page 4)

(Table 1 continued)

Scientific Name	Common Name	Location
Fundulus chrysotus	Golden topminnow	B, M, C
F. notatus	Blackstripe topminnow	All
Gambusia affinis	Mosquitofish	B, S, M, C, and P
Labidesthes sicculus	Brook silversides	SR, B, C, P, and T
Aphredoderus sayanus	Pirate perch	B
Roccus chrysops	White bass	B, S, C
R. mississippiensis	Yellow bass	C, T
Micropterus punctulatus	Spotted bass	SR, P, T
M. salmoides	Largemouth bass	All
Chaenobryttus gulosus	Warmouth	S, M, C, P, and T
Lepomis symmetricus	Bantam sunfish	T
L. punctatus	Spotted sunfish	SR, B, S, M, C and P
L. microlophus	Redear sunfish	All
L. macrochirus	Bluegill sunfish	S, M, C, P, and T
L. humilis	Orangespotted sunfish	B, T
L. auritus	Redbreast sunfish	SR, B, P
L. megalotis	Longear sunfish	SR, S, M, P, and T
Pomoxis annularis	White crappie	All
P. nigromaculatus	Black crappie	All
Centrarchus macropterus	Flier	T
Etheostoma fonticola	Fountain darter	C
Percina caprodes	Logperch	SR, B, M

(Table 1 continued on Page 5)

(Table 1 continued)

Scientific Name	Common Name	Location
Ammocrypta vivax	Scaly sand darter	B
Aplodinotus grunniens	Freshwater drum	SR, B, C, T

TABLE 2

NOTE: Table 2 contains netting collection totals for each water. These data are consolidations of individual field collections conducted during this segment.

CONSOLIDATED NETTING DATA RATIOS FOR 1970

II-A Sam Rayburn Reservoir

	Number Collected	Per Cent By Number	Total Weight (lbs)	Per Cent By Weight
Rough Fish	390	57.53	680.60	74.04
Game Fish	288	42.47	238.63	25.96
Total	678	100.00	919.23	100.00

II-B Dam "B" Reservoir

Rough Fish	356	62.90	479.71	79.43
Game Fish	210	37.10	111.29	20.57
Total	566	100.00	541.00	100.00

II-C Lake Murvaul

Rough Fish	442	55.39	301.49	52.65
Game Fish	356	44.61	271.16	47.35
Total	798	100.00	572.65	100.00

II-D Lake Striker

Rough Fish	198	58.06	422.64	80.43
Game Fish	143	41.94	102.85	19.57
Total	341	100.00	525.49	100.00

(Table 2 continued on Page 6)

(Table 2 continued)

II-E Lake Palestine

	Number Collected	Per Cent By Number	Total Weight (lbs.)	Per Cent By Weight
Rough Fish	192	65.31	192.70	62.26
Game Fish	102	34.69	116.82	37.74
Total	294	100.00	309.52	100.00

II-F Caddo Lake

Rough Fish	703	72.70	998.13	88.07
Game Fish	264	27.30	135.25	11.93
Total	967	100.00	1,133.38	100.00

II-G Toledo Bend

Rough Fish	579	69.84	640.03	76.53
Game Fish	250	30.16	196.34	23.47
Total	829	100.00	836.37	100.00

II-H Region Totals

Rough Fish	2,860	63.94	3,665.30	75.76
Game Fish	1,613	36.06	1,172.64	24.24
Total	4,473	100.00	4,837.94	100.00

NOTE: Individual percentages by weight and number for each species, K-factor data for game fish species and seining collection data were also compiled but are not listed in table form. Significant aspects of these data are included in the resumes for given waters.

SAM RAYBURN RESERVOIR:

Game fish percentages increased slightly this segment in the netting data totals. Bass fishing pressure may have reduced slightly on Sam Rayburn Reservoir due to the relatively newly impounded Toledo Bend and Livingston Reservoirs in the area. However, the splendid public access and camping facilities on Sam Rayburn are utilized to the fullest during the summer months and numerous bass tournaments are scheduled on Sam Rayburn.

Pursuant to the recommendation made in the previous segment report concerning the taking of flathead catfish in nets, Sam Rayburn is now closed to netting except by State contract, which excludes the taking of catfish. Current segment netting data did not include any flathead catfish. It is anticipated that future data will indicate an increase of this important predator species if adequate protection from nets is maintained.

Additional stocking of largemouth bass or channel catfish is not recommended for Sam Rayburn Reservoir at this time. Survey data indicate reproduction of these species is adequate.

Aquatic vegetation is not a problem in most areas of Sam Rayburn. Scattered water hyacinths have been sighted in previous years but none were observed this segment. Scattered plants are removed by project personnel in conjunction with netting activities when found.

B. A. STEINHAGEN RESERVOIR: (DAM "B")

Located in Jasper and Tyler counties below the confluence of the Angelina and Neches Rivers, Dam "B" continues to be a productive reservoir. This shallow lake provides a habitat resembling a natural lake such as Caddo and has continually produced channel and blue catfish, crappie, and largemouth bass. Alligator weed (Althernenthera philoxeroides), water hyacinths (Eichornia crassipes) and numerous submerged aquatics are a continuing problem in the reservoir. Due to good water fluctuations and resulting increased turbidity, submerged vegetation has been subdued during the last two segments. The recommendation for a fall drawdown each year on this reservoir is continued.

Good representations of the previously mentioned game fish species were collected this segment. Excellent seining collections were made which included Class 0 specimens of channel catfish, black crappie, white crappie, and largemouth bass. Numerous threadfin shad were also collected which indicates an abundance of this important forage species. Based on these data, the recommendation is made that no additional stocking be conducted at this time. It is also recommended that continued commercial netting on Dam "B" be allowed only under State contract as present regulations provide.

LAKE MURVAUL:

This relatively small reservoir in Panola County continues to produce excellent largemouth bass populations in spite of ever-increasing fishing pressure. Numerous area bass clubs fish the lake each weekend and good catches of various age class bass are common. Current netting data from Lake Murvaul reflect this bass production. Twenty-six largemouth bass weighing a total of 85 pounds were netted in February 1970. These data and those of previous segments have prompted a separate bass study on Lake Murvaul.

The success of a private channel catfish stocking program on Murvaul has not been exceptional but 1970 data indicate the channel catfish population in Murvaul is slowly increasing. It is recommended that this program be continued by the Panola Water District.

A recommendation was made this year to the Water District concerning a commercial fisherman's request to net gar in Lake Murvaul. It was recommended that this request be denied as netting data did not indicate an excessive population of gar and a previous food study in Region III-B (Job B-20) substantiated the value of these fishes as predators. This recommendation was honored by the Water District.

LAKE PALESTINE

The third stage construction on Lake Palestine in nearing completion. When storage pool elevation is reached, the reservoir will contain 21,000 acres as compared to the 6,000 acres of the second stage. It is recommended that the newly enlarged reservoir be stocked with channel catfish and largemouth bass during the 1970 segment. Netting data collected

during the two segments of extended drawndown for construction indicate that game fish populations have remained relatively stable. The recommendation has been made to prohibit contract netting on the lake during this period due to the drastically reduced habitat area for the protection of game fish species, particularly the largemouth bass and flathead catfish.

CADDO LAKE:

Caddo game fish percentages continue to be the lowest of Region III-B lakes, primarily due to large numbers of adult gizzard shad netted. Adequate samples of all game fish species were collected from Caddo this year and fishing is generally good. Submerged and emergent aquatic vegetation continues to be an acute problem in Caddo. During late summer, many areas are completely inaccessable to fishermen. Spot treatment of water hyacinths was continued this segment and is recommended for the coming year. Treatment of this noxious plant was most difficult this year as major plant growth did not occur until late summer and submerged aquatics made access by boat difficult.

No additional stocking of game fish is recommended for Caddo Lake as seining and netting collections reflect adequate reproduction.

TOLEDO BEND:

This 186,000 surface acre reservoir on the Sabine River has now achieved recognition as one of the nation's finest sport fisheries. Although access and recreational facilities have been relatively poor in comparison to the reservoir's size, they are steadily improving as millions of sportsmen continue to discover Toledo Bend. Fishing is now excellent for all game fish species in the new lake. Numerous areas of water hyacinths have been observed in the reservoir and an estimated 10,000 acres of hyacinths existed in late summer of 1970. This estimate has been forwarded to the Director of the Statewide Noxious Vegetation Control program.

Netting data collected this segment indicates good representation of largemouth bass, black crappie, white crappie, channel catfish, and blue catfish. It is surprising that only four smallmouth buffalo, an important commercial species, were collected. Seining collections were often limited due to brush and debris along the banks but Class 0 largemouth bass and crappie were collected. Based on these data, no additional stocking is recommended for Toledo Bend Reservoir.

LAKE STRIKER:

Game fish percentages declined this segment in Lake Striker, primarily due to a decrease in channel catfish collected and an increase in large carp netted in March 1970. Due to low condition factors (K-factor) on largemouth bass examined in 1969, and an apparent slow growth of white bass in the reservoir, a recommendation was made to stock the lake with threadfin shad to provide additional forage. This was achieved this year with apparent success. A total of approximately 7,000 adult threadfin were transported from Lake O' the Pines by project personnel in early March. Suqsequent seining collections this segment included numerous young threadfin shad. K-factor data from white bass

taken during the latter part of the 1970 segment show a slight increase for this species. It is anticipated that a more definite increase for this and other game fish species will be evident during the coming segment. Additional stocking of threadfin shad is recommended this year.

CONCLUSIONS AND RECOMMENDATIONS:

1. It is recommended that existing netting regulations in Sam Rayburn Reservoir be continued for the protection of the flathead catfish.

2. No additional stocking of game fish is recommended for Sam Rayburn as collection data indicate adequate reproduction.

3. A fall water drawdown is again recommended for Dam "B" Reservoir for the control of submerged aquatics.

4. Water hyacinths and alligator weed may require further chemical control on Dam "B".

5. No additional stocking of game fish species is recommended for Dam "B" as reproduction is good.

6. It is recommended that commercial netting be allowed only under State contract on Dam "B" during the coming year.

7. The recommendation is made to continue the channel catfish stocking program in Lake Murvaul, initiated in 1967 by the Panola County Water District.

8. It is also recommended that no commercial netting, contract or otherwise, be allowed in Lake Murvaul.

9. Additional stocking of threadfin shad is recommended for Lake Striker in 1971.

10. Additional stocking of game fish is not recommended for Lake Striker.

11. Additional stocking of channel catfish, largemouth bass, and crappie is recommended for Lake Palestine with the completion of third stage construction scheduled for 1971.

12. It is recommended that no contracts be awarded commercial fishermen on Lake Palestine during present drawdown conditions.

13. Spot treatment of water hyacinths is recommended for Caddo Lake in 1971.

14. Segment netting and seining data from Caddo Lake indicate additional stocking of game fish is not feasible.

15. Additional stocking of game fish species in Toledo Bend Reservoir is not recommended as segment data indicates good reproduction.

16. Water hyacinths on Toledo Bend Reservoir may require large scale treatment in the near future.

It is recommended that this job be continued to provide valid fish harvest regulations through current population sampling data, vegetation control needs and stocking needs where feasible. Field data compiled from this study are vital in continuing these important objectives.

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