JOB PROGRESS REPORT

As Required By

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-3-R-19

REGION III-B FISHERIES STUDIES

Job No. 15: Fisheries Management Recommendations

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ABSTRACT

A preliminary meeting was held in Palestine on March 25, 1971, between Parks and Wildlife Biologists, Game Management Officers and Supervisory personnel for the discussion of proposed regulation changes in the regulatory authority areas. Inland Fisheries, Region III-B, includes counties in three regulatory areas. Northeast Texas Area, Southeast Texas Area, and the Trinity-Brazos Area. Several changes were made in the Statewide fisheries regulations applicable to regulatory authority counties within Region III-B:

1. Commercial netting on Sam Rayburn Reservoir is on contract bid basis only.
2. A size limit of 11 inches has been placed on all channel catfish.
3. Snagging fish has been deemed illegal.
4. All trotlines must bear a legible tag indicating the owner and the date the line was set.

Management recommendations derived from the 1970 segment field data include:

1. Continued contract netting on Sam Rayburn Reservoir.
2. No additional stocking of game fish in Sam Rayburn Reservoir.
3. A fall water draw-down on Dam "B" Reservoir for vegetation control.
4. No additional stocking of game fish in Dam "B" Reservoir.
5. Continued channel catfish stocking program on Lake Murvaul.
6. No commercial netting of any type on Lake Murvaul.
7. No additional stocking of threadfin shad is recommended.
8. Commercial netting be allowed on Lake Striker on a contract bid basis.
9. Additional stocking of game fish is not recommended for Lake Striker
10. No additional stocking of game fish on Toledo Bend Reservoir.
11. No additional stocking of game fish on Caddo Lake.
12. Commercial netting be closed on Lake O'the Pines, for protection of flathead catfish and other game species.
13. Chemical control of water hyacinths on Toledo Bend Reservoir and Caddo Lake, where economically feasible.

JOB PROGRESS REPORT

State Texas Name: Region III-B Fisheries Studies

Project No. F-3-R-19

Job No. 15 Title: Fisheries Management Recommendations

Period Covered: February 1, 1971, to January 31, 1972.

OBJECTIVES:

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.

PROCEDURES:

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

   b. Proposed fishery regulations were 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 in making fish collections. Experimental nets used in these collections were 150 feet in length and 8 feet in depth, with square mesh ranging from 1 inch to 3, and 1/2-inch increments 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 degrees of reproduction. Where field sampling indicates little or no reproduction, the normal stocking recommendations 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 the surveys, visual observations of aquatic vegetation were made and recorded to determine those areas infested with noxious plants detrimental to fishermen access and usage.

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

FINDINGS:

A preliminary meeting was held in Palestine on March 25, 1971, between Texas Parks and Wildlife Biologists, Game Management Officers, and Supervisory personnel for the discussion of proposed regulation changes in the regulatory authority areas.

Inland Fisheries Region III-B includes counties in 3 regulatory authority areas: Northeast Texas Area, Southeast Texas Area and the Trinity-Brazos Area. Several changes were made in the Statewide Fisheries regulations applying to most regulatory authority counties.

1. Commercial netting on Sam Rayburn is on contract bid basis only.

2. A size limit of 11 inches has been placed on all channel catfish.

3. Snagging fish has been deemed illegal.

4. All trotlines must have a legible tag placed on the trotline indicating the owner and the date the line was set.

Public hearings were attended by project personnel in each regulatory county on May 1-5, 1971.

The following resumes and data tables are submitted for field activities on 7 reservoirs included in this study. Table 1 is a check list of the fish species collected from all waters in 1971.

Caddo Lake

Caddo game fish percentages increased the past segment, but this was primarily due to the large numbers of yellow bass netted as indicated in Table 2. Adequate samples of all game fish species were collected from Caddo this year and fishing is generally fair. Submerged and emergent aquatic vegetation continues to be an acute problem in Caddo Lake. During the summer, many areas become completely inaccessable to fishermen.

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

J. B. Steinhagen Reservoir (Dam "B")

Game fish and rough fish percentages were similar as compared with previous segments. Catfish reproduction remains good as adequate numbers were recorded in netting and seining collections, as shown in Table 3. Adequate samples of all other game fish species were collected.

Alligator weed and water hyacinths and numerous submerged aquatics are a continuing problem in the reservoir. Due to good water fluctuations and resulting turbidity, submerged vegetation has been subdued during the last 3 segments. The recommendation for the fall draw-down each year on the reservoir is continued.

Table 1

Fish Species Collected From Region III-B Waters - 1971

Scientific Name	Common Name	Caddo Lake	Dam "B" Reservoir	Lake O' the Pines	Lake Murvaul	Sam Rayburn Reservoir	Lake Striker	Toledo Bend Reservoir
Lepisosteus spatula	Alligator gar					x		
L. oculatus	Spotted gar	x	x	x	x	x	x	x
L. osseus	Longnose gar	x	x			x		x
Amia calva	Bowfin	x	x	x	x	x		x
Dorsoma petenense	Threadfin shad		x	x		x	x	
D. cepedianum	Gizzard shad	x	x	x	x	x	x	x
Esox americanus	Grass pickerel			x				x
E. niger	Chain pickerel	x		x				
Ictiobus bubalus	Smallmouth buffalo	x	x			x		
Carpiodes carpio	River carpsucker					x		x
Moxostoma poecilurum	Gray redhorse		x					
Minytrema melanops	Spotted sucker	x	x	x	x	x	x	x
Erimyzon sucetta	Lake chubsucker	x	x	x	x	x		x
Cyprinus carpio	Carp			x		x	x	x
Notemigonus crysoleucas	Golden shiner	x		x	x	x		x
Notropis fumeus	Ribbon shiner		x			x		
N. chalybaeus	Ironcolor shiner	x	x		x	x		
N. texanus	Weed shiner				x			

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Table 1 continued:

Scientific Name	Common Name	Caddo Lake	Dam "B" Reservoir	Lake O' the Pines	Lake Murvaul	Sam Rayburn Reservoir	Lake Striker	Toledo Bend Reservoir
N. venustus	Blacktail shiner	x		x		x	x	
N. lutrensis	Red shiner	x		x				
N. stramineus	Sand shiner		x	x		x		
Pimephales vigilax	Bullhead minnow		x	x	x	x	x	
Ictalurus punctatus	Channel catfish	x	x	x	x	x	x	x
I. furcatus	Blue catfish		x					x
Ictalurus melas	Black bullhead	x	x	x	x	x		x
I. natalis	Yellow bullhead	x	x	x	x	x		x
Pylodictis olivaris	Flathead catfish	x	x	x	x	x	x	x
Fundulus chrysotus	Golden topminnow	x	x		x			
F. notatus	Blackstripe topminnow	x	x	x	x	x	x	x
Gambusia affinis	Mosquitofish	x	x	x	x		x	
Labidesthes sicculus	Brook silversides	x	x	x		x		x
Aphredoderus sayanus	Pirate perch		x					
Roccus chrysops	White bass	x	x					
R. mississippiensis	Yellow bass	x						x
Micropterus punctulatus	Spotted bass			x		x		x
M. salmoides	Largemouth bass	x	x	x	x	x	x	x
Lepomis gulosis	Warmouth	x		x	x		x	x

Continued on Page 5

Table 1 (continued):

Scientific Name	Common Name	Caddo Lake	Dam "B" Reservoir	Lake O' the Pines	Lake Murvaul	Sam Rayburn Reservoir	Lake Striker	Toledo Bend Reservoir
Lepomis symmetricus	Bantam sunfish							x
L. punctatus	Spotted sunfish	x	x		x	x	x	
L. microlophus	Redear sunfish	x	x	x	x	x	x	x
L. macrochirus	Blue sunfish	x	x	x	x	x	x	x
L. humilis	Orangespotted sunfish		x					x
L. auritus	Redbreast sunfish			x		x		x
L. megalotis	Longear sunfish			x	x	x	x	x
Pomoxis annularis	White crappie	x	x	x	x	x	x	x
P. nigromaculatus	Black crappie	x	x	x	x	x	x	x
Centrarchus macropterus	Flier			x	x			x
Etheostoma fonticola	Fountain darter	x						
Percina caprodes	Logperch		x		x	x		
Ammocrypta vivax	Scaly sand darter		x					
Aplodinotus grunniens	Freshwater drum	x	x	x		x		x

NOTE: The following charts are the total netting results for each water conducted during this segment. The entire survey has been presented so that the species composition in the lake may be observed.

Table 2

Caddo Lake Netting Results

Species	Number	Per Cent Of Number	Weight	Per Cent Of Weight	Average Weight
Spotted gar	15	2.41	29.75	6.48	1.98
Bowfin	1	0.16	9.00	1.96	----
Gizzard shad	109	17.50	104.12	22.66	0.95
Chain pickerel	9	1.44	13.62	2.96	1.51
Spotted sucker	50	8.03	88.06	19.17	1.76
Chub sucker	5	0.80	3.30	0.72	0.66
Golden Shiner	3	0.48	1.00	0.22	0.33
Channel catfish*	16	2.57	7.12	1.55	0.44
Black bullhead	4	0.64	8.00	1.74	2.00
Yellow bullhead	5	0.80	7.00	1.52	1.40
White bass*	5	0.80	7.99	1.74	1.59
Yellow bass*	309	49.60	110.88	24.14	0.35
Largemouth bass*	6	0.96	14.06	3.06	2.34
Warmouth*	1	0.16	0.50	0.11	----
Redear sunfish*	14	2.25	1.87	0.41	0.13
Bluegill sunfish*	8	1.29	1.31	0.29	0.16
White crappie*	9	1.44	2.94	0.64	0.32
Black crappie*	47	7.55	34.25	7.45	0.72
Drum	7	1.12	14.63	3.18	2.09
Totals	623	100.00	459.40	100.00	
Rough Fish	208	33.39	278.48	60.62	
Game Fish*	415	66.61	180.92	39.38	

Table 3

Dam "B" Reservoir Netting Results

Species	Number	Per Cent of Number	Weight	Per Cent of Weight	Average Weight
Spotted gar	26	5.30	94.06	14.94	3.62
Longnose gar	12	2.44	39.19	6.22	3.26
Bowfin	5	1.03	30.69	4.88	6.14
Gizzard shad	93	18.94	40.13	6.38	0.43
Smallmouth buffalo	31	6.31	121.51	19.31	3.92
River carpsucker	6	1.22	10.62	1.69	1.77
Spotted sucker	69	14.05	92.08	14.63	1.33
Carp	3	0.61	12.50	1.99	4.16
Channel Catfish*	50	10.18	37.69	5.99	0.75
Blue catfish*	15	3.05	14.38	2.28	0.96
Flathead catfish*	4	0.81	16.50	2.62	4.13
Yellow bullhead	6	1.22	5.94	0.94	0.99
Spotted bass*	2	0.41	0.56	0.09	0.28
Largemouth bass*	8	1.63	14.44	2.29	1.81
Warmouth*	5	1.02	1.88	0.30	0.38
Redear Sunfish*	26	5.30	7.50	1.19	0.29
Bluegill Sunfish*	11	2.24	2.25	0.36	0.20
White crappie*	40	8.15	28.44	4.52	0.71
Black crappie*	19	3.87	12.18	1.94	0.64
Drum	60	12.22	46.87	7.44	0.78
Totals	491	100.00	629.41	100.00	
Game fish*	180	36.66	136.82	21.58	
Rough fish	311	63.34	493.59	78.42	

Seining collections indicated excellent reproduction of most game fish. Based on these data no additional stocking is recommended. It is also recommended that continued commercial netting on Dam "B" be allowed only under State contract as present regulations provide.

Lake O' the Pines

Total percentage of all game fish species from Lake O' the Pines data was low, due to a large number of gizzard shad netted, as indicated in Table 4.

Netting data collected this segment indicates good representation of largemouth bass, black and white crappie, flathead and channel catfish (See Table 4).

The black and white crappie demonstrated excellent growth rates as their average weight was 1.31 and 1.68 pounds respectively.

Lake O' the Pines contains a large spotted bass population, even though the netting results are low, fisherman success indicates a large population.

Threadfin and gizzard shad reproduction was found to be excellent as all age groups were collected.

Good reproduction was found in all major game fish with the exception of channel catfish. Reproduction of this species is questionable, but prior stockings in 1967, through 1970, have increased the population significantly. With these data, further stocking of all game fish is not recommended.

Lake Murvaul

Lake Murvaul remains as one of the top bass lakes in the State. Creel census data indicates that 254 fishermen caught bass weighing in excess of 6 pounds, the largest bass recorded for 1971, was 9 pounds 9 ounces. Reproduction of bass is excellent as many young-of-the-year were collected in the seining collections.

Netting data, in Table 5, indicates a good representation of all game fish. Reproduction was found in all species except channel catfish, but supplemental stocking of 6 to 8-inch fingerlings each year has provided a large catfish population.

Total rough fish percentages in Murvaul have increased due to the large number of adult gizzard shad netted this segment.

No additional stocking of game fish is recommended for 1972, with the exception of channel catfish. It is recommended that the Panola County Water District continue their rearing-stocking program.

Sam Rayburn Reservoir

Game fish percentages decreased slightly this segment in the netting data totals, as shown in Table 6. This was attributed to the high number of gizzard shad netted.

Table 4

Lake O' The Pines Netting Results

Species	Number	Per Cent of Number	Weight	Per Cent of Weight	Average Weight
Spotted gar	23	2.82	71.06	8.58	3.09
Gizzard shad	386	47.36	323.06	39.04	0.84
Chain pickerel	25	3.07	39.25	4.74	1.57
Spotted sucker	24	2.95	67.81	8.19	2.83
German carp	3	.37	8.00	.97	2.67
Chub sucker	2	.25	1.52	.18	.76
Golden shiner	20	2.45	4.00	.48	.20
Channel catfish*	18	2.20	50.07	6.05	2.78
Black Bullhead	15	1.84	32.18	3.89	2.15
Yellow bullhead	9	1.11	6.18	.75	.69
Flathead catfish*	4	.49	24.31	2.94	6.08
Spotted bass*	7	.86	7.14	.86	1.02
Largemouth bass*	27	3.31	46.30	5.60	1.71
Warmouth*	1	.12	.50	.06	.50
Redear sunfish*	112	13.74	28.44	3.44	.25
Bluegill*	62	7.61	9.83	1.19	1.68
White crappie*	7	.86	11.75	1.42	1.68
Black crappie*	70	8.59	96.12	11.62	1.37
Totals	815	100.00	827.52	100.00	
Game Fish*	308	37.79	274.46	33.17	
Rough Fish	507	62.21	553.06	66.83	

Table 5

Lake Murvaul Netting Results

Species	Number	Per Cent of Number	Weight	Per Cent of Weight	Average Weight
Spotted gar	13	1.38	32.56	7.76	2.50
Bowfin	2	.21	12.12	2.89	6.06
Gizzard shad	496	52.43	141.97	33.83	.29
Lake chubsucker	3	.32	1.02	.24	.34
Golden shiner	1	.11	.13	.03	----
Channel catfish*	23	2.43	45.63	10.87	1.98
Yellow bullhead	23	2.43	18.26	4.35	.79
Flathead catfish*	4	.42	19.00	4.53	4.75
Largemouth bass*	30	3.17	36.74	8.75	1.22
Warmouth*	2	.21	.62	.15	.07
Spotted sunfish*	2	.21	.25	.06	.13
Redear sunfish*	104	10.99	35.65	8.48	.34
Bluegill sunfish*	197	20.83	30.62	7.30	.16
White crappie*	11	1.16	14.38	3.43	1.31
Black crappie*	35	3.70	30.75	7.33	.88
Totals	946	100.00	419.70	100.00	
Rough Fish	538	56.87	206.06	49.10	
Game fish*	408	43.13	213.64	50.90	

Table 6

Sam Rayburn Reservoir Netting Results

Species	Number	Per Cent of Number	Weight	Per Cent of Weight	Average Weight
Spotted gar	10	1.53	32.76	4.22	0.42
Longnose gar	8	1.23	81.24	10.48	10.16
Bowfin	8	1.23	50.13	6.46	6.27
Gizzard shad	276	42.33	127.37	16.43	0.46
Threadfin shad	1	0.15	0.13	0.02	0.13
Bigmouth buffalo	1	0.15	11.37	1.46	-----
Smallmouth buffalo	49	7.52	219.12	28.26	4.47
River carpsucker	1	0.15	2.88	0.37	2.88
Spotted sucker	22	3.37	29.75	3.84	1.35
Carp	3	0.46	16.75	2.16	5.58
Channel catfish*	5	0.77	11.37	1.47	2.27
Black bullhead	3	0.46	4.87	0.63	1.62
Yellow bullhead	10	1.53	8.92	1.15	0.89
White bass*	5	0.77	11.31	1.46	2.26
Spotted bass*	2	0.31	0.50	0.06	0.25
Largemouth bass*	17	2.61	23.87	3.08	1.40
Redear Sunfish*	16	2.46	4.94	0.64	0.31
Bluegill sunfish*	69	10.58	11.37	1.47	0.16
White crappie*	73	11.20	67.88	8.75	0.93
Black crappie*	66	10.12	39.55	5.10	0.60
Drum	7	1.07	19.30	2.49	2.76
Totals	652	100.00	775.38	100.00	
Game Fish*	253	38.80	170.79	22.03	
Rough Fish	399	61.20	604.59	77.97	

Smallmouth buffalo accounted for 28 per cent of the total weight of fish netted. Commercial netting is permitted on contract bid basis only. All catfish have been protected from commercial netting.

Fishing success of all game fish species still remains good. Bass fishing pressure has been extremely high this segment, with one large bass tournament yielding over 10,000 pounds of bass. Crappie fishing has been good throughout 1971.

Survey data has indicated good reproduction for all game fish species. Additional stocking of bass and channel catfish is not recommended for Sam Rayburn Reservoir.

Lake Striker

Game fish percentages increased this segment, primarily due to the large number of channel catfish netted, as shown in Table 7. A good representation of all game fish was collected with the exception of largemouth bass. Threadfin shad were stocked in 1970, to provide additional forage. Due to the small numbers of bass netted, it is difficult to evaluate the threadfin stocking as related to largemouth bass. White bass numbers have increased, as have the average size of this species. It is recommended that commercial netting of carp be permitted on Lake Striker to reduce this dominant rough fish species. Netting permits should be issued by contract basis only.

Reproduction has been found in all major game fish species, therefore, no additional stocking is recommended for 1972.

Toledo Bend Reservoir

Toledo Bend continues to provide one of the Nation's best sport fisheries. Numerous bass tournaments have been held this segment with great success. Public access has been improved. Striped bass have been recovered by fishermen throughout the lake. Striped bass were stocked by the Louisiana Game and Fish Commission in 1969, 1970, and 1971.

Netting data collected this segment, as shown in Table 8, indicates good representation of largemouth bass, black crappie, white crappie and channel catfish. Gizzard shad and yellow bullheads represented the bulk of rough fish species netted.

Reproduction of most game fish was found to be satisfactory. No supplementory stocking is recommended for this segment.

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With the establishment of 2 additional fisheries projects in Region III, Project III-B and III-A work areas were modified in September 1971. Sam Rayburn Reservoir and B. A. Steinhagen Reservoir are now the responsibility of the Region III-D Project. Lake Palestine is now under Project III-C management. Lake Texarkana, formally assigned to Project III-A, is now the responsibility of III-B.

Table 7

Lake Striker Netting Results

Species	Number	Per Cent of Number	Weight	Per Cent of Weight	Average Weight
Spotted gar	1	.40	1.37	.68	----
Gizzard shad	85	34.41	23.87	11.76	.28
Spotted sucker	14	5.67	17.19	8.47	1.22
Carp	14	5.67	88.88	43.80	6.34
Channel catfish*	55	22.27	33.62	16.57	.61
Flathead catfish*	3	1.22	7.50	3.70	2.50
White bass*	20	8.10	13.19	6.50	.65
Spotted bass*	1	.41	.75	.37	----
Largemouth bass*	3	1.21	1.93	.95	.64
Warmouth*	1	.40	.13	.06	----
Redear sunfish*	15	6.07	5.00	2.46	.33
Bluegill sunfish*	16	6.48	3.50	1.73	.21
White crappie*	18	7.29	5.63	2.77	.31
Black crappie*	1	.40	.37	.18	----
Totals	247	100.00	202.93	100.00	
Rough Fish	114	46.15	131.31	64.71	
Game Fish*	133	53.85	71.62	35.29	

Table 8

Toledo Bend Reservoir Netting Results

Species	Number	Per Cent of Number	Weight	Per Cent of Weight	Average Weight
Spotted gar	58	6.63	115.17	11.60	1.99
Longnose gar	1	0.11	5.50	0.55	5.50
Bowfin	37	4.23	169.88	17.11	4.59
Gizzard shad	179	20.46	85.38	8.60	0.48
Spotted sucker	42	4.80	82.24	8.28	1.96
Lake chubsucker	15	1.71	4.86	0.49	0.32
River carpsucker	15	1.72	4.52	0.46	0.30
Smallmouth buffalo	4	0.46	28.25	2.85	7.06
German carp	3	0.34	19.26	1.94	6.42
Blacktail redhorse	1	0.11	2.19	0.22	----
Golden shiner	1	0.11	0.25	0.03	----
Flathead catfish*	1	0.11	11.62	1.17	----
Channel catfish*	6	0.69	25.81	2.60	4.30
Black bullhead	66	7.54	83.61	8.42	1.27
Yellow bullhead	188	21.49	209.32	21.09	1.11
Largemouth bass*	25	2.86	42.50	4.28	1.70
Warmouth*	12	1.37	3.95	0.40	0.33
Redear sunfish*	2	0.23	0.63	0.06	0.32
Bluegill sunfish*	148	16.92	50.00	5.04	0.34
Longear sunfish*	3	0.34	0.99	0.10	0.33
White crappie*	16	1.83	23.81	2.40	1.49

(continued on Page 15)

Table 8 Continued:

Species	Number	Per Cent of Number	Weight	Per Cent of Weight	Average Weight
Black crappie*	32	3.66	14.43	1.45	0.45
Flier*	19	2.17	6.44	0.65	0.34
Drum	1	0.11	2.13	0.21	----
Totals	875	100.00	992.74	100.00	
Game fish*	264	30.17	156.97	15.81	
Rough fish	611	69.83	835.77	84.19	

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 Reservoir as collection data indicate adequate reproduction.

3. A fall water draw-down is recommended for Dam "B" Reservoir for the control of submerged aquatics.

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

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

6. It is also recommended that no commercial netting contract or otherwise be permitted on Lake Murvaul.

7. No additional stocking of threadfin shad is recommended for Lake Striker as there is a well established population there.

8. It is recommended that commercial netting be allowed on Lake Striker, due to the large carp population (by contract bid basis only).

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

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

11. Segment netting and seining data from Caddo Lake indicates additional stocking of game fish is not advisable.

12. It is recommended that the use of nets be prohibited in Lake O' the Pines for the protection of the flathead catfish and other game fish species. This action would require legislative action as Marion County is not an area of regulatory responsibility.

13. It is recommended that chemical control of water hyacinths and submerged aquatics be conducted on Toledo Bend and Caddo Lake.

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