

SEGMENT COMPLETION REPORT

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Federal Aid Project No. F-3-R-13

Fisheries Investigations and Surveys of the Waters of Region 3-B

Job No. B-22 (Seg. 1) Basic Survey and Inventory of Fish
Species in Sam Rayburn Reservoir.

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ABSTRACT

A total of 27 species of fish was netted from Sam Rayburn Reservoir this segment. This newly impounded reservoir on the Angelina River will contain approximately 114,000 surface acres at conservation pool level. At present, the reservoir contains 30,000 - 40,000 surface acres of water.

To date, 1,062,400 game fish have been stocked in the reservoir by the Jasper Fish Hatchery. Game fish species collected are in good condition and many reports of good catches have been received from fishermen.

Large areas of the reservoir basin have been cleared of timber. Logs and brush clutter much of the present shoreline but this condition should improve with the impoundment of additional water.

Accessibility to the lake is good and many fine camping and launching facilities are available. Sam Rayburn Reservoir is destined to become a favorite with many Texas sportsmen.

SEGMENT COMPLETION REPORT

State of Texas

Project No. F-3-R-13

Name: Fisheries Investigations and Surveys of
the Waters of Region 3-B.

Job No. B-22 (Seg. 1 of 3)

Title: Basic Survey and Inventory of Fish Species
in Sam Rayburn Reservoir.

Period Covered: February 1, 1965 - January 31, 1966

Objectives:

To gather fundamental information on the newly impounded waters of Sam Rayburn Reservoir in relation to their physical, chemical and biological aspects.

History:

Sam Rayburn Reservoir was authorized by the River and Harbor Act of March 2, 1945. Work was begun on the dam in 1957 and completed in 1965.

The earth filled dam is located on the Angelina River, 25.2 river miles above its confluence with the Neches River and approximately 10 miles northwest of Jasper, Texas. The dam has a height of 120 feet above the stream bed, a 30 foot crown and a overall length of 19,430 feet. The dam has an uncontrolled spillway of 2,200 feet. The upstream slope of the dam is protected from erosion by rip-rap.

Water was impounded in April, 1965. At the top of the power pool, elevation 164.0 feet, the lake will cover an area of approximately 114,500 acres with approximately 560 miles of shore line, the present surface acreage is approximately 30,000 - 40,000.

Sam Rayburn Dam is designed as a multi-purpose dam providing water conservation, hydro-electric power, flood control, recreation and benefits to navigation.

Procedure:

A collecting trip was planned for each month of the segment. Data collected each month included gill netting results and seining collections.

Netting Methods

Ten standardized experimental type gill nets were set each month, with the exception of November, when only 5 nets were set. The nets were set at 5 random locations each month. The nets were 150 feet long and 8 feet deep with mesh size ranging from 1 to 3½ inches in 25 foot sections. The nets were set in the afternoon and picked up the following morning.

All netted fish were separated according to species, then counted and weighed. The game fish were individually weighed and measured for standard length. Their sexual condition and stomach contents were also recorded. Coefficients of condition ("K" factors) of the game fish were calculated.

Seining

Seining collections were made with a 26 by 6 foot bag seine with $\frac{1}{4}$ inch mesh and a 15 by 4 foot bag seine with $\frac{1}{8}$ inch mesh. Seining was very difficult due to the amount of brush and driftwood found along the edge of the lake. Most seining collections were made on old road beds leading into the lake. Figure 2 is a typical example of shoreline on the reservoir.

Findings:

Stocking

The following fish were put in the lake by the Jasper Hatchery:

Channel catfish	35,300
Longear sunfish	40,000
Goggle-eye (warmouth)	80,000
Crappie	7,000
Redear sunfish	530,000
Largemouth bass	364,000

The following fish were put in the lake by the Huntsville Hatchery:

Channel catfish	6,100
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Fish Collections

A total of 29 species, representing 9 families were collected from Sam Rayburn Reservoir as shown in Table 1.

Netting

A total of 885 fish made up of 27 species was collected by netting. The carp (Cyprinus carpio) was the most numerous species collected with a total of 239 (27.00 percent). Smallmouth buffalo (Ictiobus bubalus) was the second most numerous species collected with 138 (15.60 percent).

The most numerous game fish species netted was the warmouth (Chaenobryttus gulosus). A total of 21 (2.37 percent) were caught.

Table 3 contains the number, percent of number, weight and percent of weight of the total netting results.

Table 2 indicates the coefficient of condition ("K" factor) for each species of game fish collected. All species of game fish collected were in excellent condition.

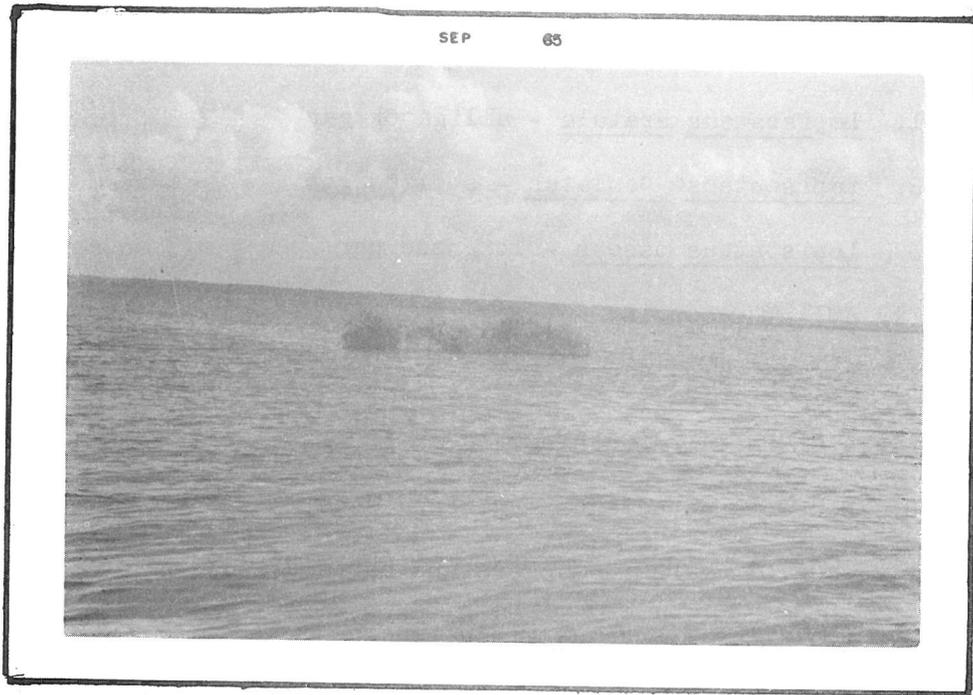


Fig. 1. Cleared area one mile above dam.



Fig. 2. Good seining station!

Table 1

A Checklish of Sam Rayburn Reservoir Fish Species

- I. Family: LEPISOSTEIDAE - gars
1. Lepisosteus spatula - alligator gar
 2. Lepisosteus oculatus - spotted gar
 3. Lepisosteus osseus - longnose gar
- II. Family AMIIDAE - bowfin
4. Amia calva - bowfin
- III. Family: CLUPEIDAE - herrings
5. Dorosoma cepedianum - gizzard shad
- IV. Family: CATOSTOMIDAE - suckers and buffalofishes
6. Cycleptus elongatus - blue sucker
 7. Ictiobus cyprinellus - bigmouth buffalo
 8. Ictiobus bubalus - smallmouth buffalo
 9. Carpiodes carpio - river carpsucker
 10. Minytrema melanops - spotted sucker
 11. Erimyzon sucetta - lake chubsucker
- V. Family: CYPRINIDAE - shiners and minnows
12. Cyprinus carpio - carp
- VI. Family: AMEIURIDAE - freshwater catfish
13. Ictalurus punctatus - channel catfish
 14. Ictalurus furcatus - blue catfish
 15. Ictalurus melas - black bullhead
 16. Ictalurus natalis - yellow bullhead
 17. Pylodictis olivaris - flathead catfish
- VII. Family: CYPRINODONTIDAE - killifishes and topminnows
18. Fundulus notatus - blackstripe topminnows

VIII. Family: CENTRARCHIDAE - black basses and sunfishes

- 19. Micropterus punctulatus - spotted bass
- 20. Micropterus salmoides - largemouth bass
- 21. Chaenobryttus gulosus - warmouth
- 22. Lepomis microlophus - redear sunfish
- 23. Lepomis macrochirus - bluegill sunfish
- 24. Lepomis auritus - redbreasted sunfish
- 25. Lepomis megalotis - longear sunfish
- 26. Pomoxis annularis - white crappie
- 27. Pomoxis nigromaculatus - black crappie
- 28. Centrarchus macropterus - flier

IX. Family: SCIAENIDAE - croakers, drum and weakfishes

- 29. Aplodinotus grunniens - freshwater drum

Table 2

Coefficient of condition ("K" factor) for Sam Rayburn Reservoir

Species	Number	Range	Average
Channel catfish	10	1.32 - 2.64	1.89
Blue catfish	8	1.76 - 2.54	2.32
Flathead catfish	3	2.20 - 2.57	2.41
Spotted bass	3	2.58 - 3.61	3.00
Largemouth bass	7	2.38 - 3.88	3.30
Warmouth	16	2.57 - 6.01	4.51
Spotted sunfish	2	4.25 - 4.87	4.56
Bluegill sunfish	13	4.35 - 6.05	5.21
Redbreasted sunfish	2	5.20 - 6.01	5.61
Longear sunfish	1		4.26
White crappie	12	2.32 - 4.62	3.49
Black crappie	7	2.27 - 3.96	3.23

Table 3

Netting collection from Sam Rayburn Reservoir

Species	Number	Percent of No.	Weight	Percent of Weight
Alligator gar*	121	13.67	493.19	34.56
Spotted gar*	25	2.82	29.31	2.05
Longnose gar*	44	4.97	77.37	5.42
Bowfin*	96	10.84	184.64	12.93
Gizzard shad*	6	.68	6.57	.47
Blue sucker*	1	.11	2.75	.19
Bigmouth buffalo*	13	1.47	26.12	1.83
Smallmouth buffalo*	138	15.60	145.67	10.21
River carpsucker*	22	2.49	5.26	.37
Spotted sucker*	3	.34	2.50	.18
Lake chubsucker*	1	.11	.19	.02
Carp*	239	27.00	280.62	19.66
Channel catfish	14	1.58	18.75	1.31
Blue catfish	8	.91	36.13	2.53
Black bullhead*	49	5.53	22.38	1.56
Yellow bullhead*	9	1.01	7.12	.50
Flathead catfish	9	1.02	29.29	2.05
Spotted bass	2	.23	2.68	.19
Largemouth bass	8	.90	9.37	.66
Warmouth	21	2.37	4.44	.31
Bluegill sunfish	16	1.81	3.56	.25
Redbreasted sunfish	3	.34	.26	.02
Longear sunfish	1	.12	.19	.01
White crappie	12	1.36	10.24	.72
Black crappie	8	.90	3.13	.22
Flier	1	.12	.25	.02
Drum*	15	1.70	25.12	1.76
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Totals	885	100.00	1427.10	100.00
Rough Fish*	782	88.36	1308.81	91.71
Game Fish	103	11.64	118.29	8.29

Seining Collections

Five seining collections were made consisting of 25 seine drags. A total of 90 specimens, representing 6 species were collected. Seining conditions were extremely difficult due to the amount of brush and floating logs found along the marginal areas of the lake. When conservation pool level is obtained seining conditions will improve.

Food

Most of the fish stomachs that were examined contained some type of food. The most common food item found was small shad, with crayfish also abundant. During this segment many schools of small shad were sighted which indicates that there is a good supply of forage fish available for the game species.

Game and Rough Fish Ratio

During the year, 12 game fish species and 15 rough fish species were netted. Out of 885 individual specimens netted 103 were game fish and 782 were rough fish. By per cent of number this was 11.64 per cent game fish and 88.36 per cent rough fish. The percentage by weight was 8.29 per cent game fish and 91.71 per cent rough fish.

The carp was the most common rough fish netted, with 27 per cent of the total number. The smallmouth buffalo was next with 15.60 per cent of the total number. The alligator gar comprised 13.67 per cent of the total number and 34.56 per cent of the total weight. Bowfin made up 10.84 per cent of the total number and 12.93 per cent of the total weight.

Fishing Success and Recreational Facilities

Sam Rayburn Reservoir has been open to the public for fishing since water was first impounded. Fishing pressure has increased as the lake has increased in size.

Bass fishing has been very good with many fishermen catching their limits. Crappie fishing has been good below the dam. Several trotline fishermen report good catches of channel catfish.

Public access to the lake is very good with numerous launching sites and camping areas being constructed by the U. S. Corps of Engineers.

Pre-Impoundment Clearing

Large areas of the reservoir have been cleared of timber. Brush has grown in the basin since clearing operations and is quite thick in many marginal areas of the lake at the present water level. Floating logs have drifted into shallow water in many areas. Felled trees are floating or partly submerged in many areas of the lake and are potential hazards to boats. Fishermen should also use caution when boating in the large areas of open water if windy conditions prevail.

Vegetation

Observations were made of aquatic vegetation in the reservoir in conjunction with netting activities. The only noxious species of plant noted was the water hyacinth. Small patches of hyacinths were observed south of Highway 147 crossing near the old river channel in a wooded area. Control measures may be necessary under a separate project.

Conclusions and Recommendations:

Lake Sam Rayburn will undoubtedly become a favorite fishing and recreational area to thousands of people each year. Many fine camping and launching areas are now under construction by the U. S. Corps of Engineers. Several sites have been completed. At present water level, accessibility to the reservoir is good. It will improve however, when conservation pool level is obtained as the concrete boat ramps can be utilized.

Many catches of largemouth bass have been reported by sport fishermen. The initial stocking program and the original population from the Angelina River have established this important species in the reservoir. Black and white crappie have also provided good sport to fishermen in Lake Sam Rayburn and all specimens netted exhibited a high coefficient of condition.

Netting collections will be continued on a monthly basis during the coming segment with ten standard units of experimental gill nets set each month at random sites. With the impoundment of additional water, the size of the reservoir is expected to increase rapidly.

Seining collections were not complete this segment due to extremely difficult conditions caused by brush and floating debris in the marginal areas of the lake. This condition will improve with the impoundment of additional water and a complete checklist of species collected by seining will be made.

Game fish collected this segment showed high condition coefficients and growth rates are rapid. Fishing should be excellent in Lake Sam Rayburn this spring.

Rough fish species comprised 88.36 per cent of the segments netting record by number. Of this figure however, carp (Cyprinus carpio) and small-mouth buffalo (Ictiobus bubalus) made up 42.60 per cent. These species may support a substantial commercial fishery in the future.

It is anticipated that a higher percentage of game fish will be collected during the coming segment as a successful spawn should be obtained in the new reservoir in the spring of 1966.

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Date October 17, 1966

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