

Segment Completion Report

by

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FILE

TITLE

Inventory of Species Present in the Belton Reservoir.

OBJECTIVES

To determine the species present and their relative abundance as well as to determine the ecological factors influencing their distribution.

METHODS

Specimens were collected from the Leon River and Cowhouse Creek, its principal tributary within the Belton Reservoir Area, mainly through the use of small mesh seines. Several gill net collections, using nets with experimental mesh sizes in 25 ft. sections ranging in size from one to three inches (sq. mesh) in $\frac{1}{2}$ inch intervals, were also made.

In the case of seined specimens, all fish were preserved in 10% formalin solution and later counted and identified in the laboratory. Gill net specimens were identified, counted, weighed, measured and sexed in the field. Only the stomachs of these specimens were preserved for later stomach analysis work.

FINDINGS

Since water was not impounded in the Belton Reservoir prior to March 10, 1954 only limited work in the nature of a preimpoundment study could be done during the 1953-54 segment period.

To date, 476 fish specimens were collected from the various stations within the reservoir area by seining and only 117 specimens were collected in gill nets. The results of the seining collections are shown in Table I, while the results of the gill net collections are shown in Table II. A checklist of species now known to exist in the reservoir is given in Table III.

Water analysis made at several stations in the reservoir area during the past segment period showed the following ranges in water quality.

	Tests Made Prior to Impoundment	Tests Made After Impoundment
Oxygen	7.4 - 7.6 ppm	6.0 ppm
Carbon dioxide	trace - 1.0 ppm	5.0 ppm
Chlorides	2.0 - 8.0 ppm	16.0 ppm
pH	8.1 - 8.2	7.7 ppm

Turbidity in the reservoir area prior to impoundment varied from none during times of little flow in the Leon River to very high during times of heavy run-off. After impoundment, the water in the lower end of the reservoir, where there is no current, was

clear but stained brown by decaying vegetation. In the upper portion of the reservoir while there was current in the old river channel, turbidity was high due to the influx of silt laden runoff water from the Leon River watershed.

At present, June 1954, approximately 13,144 acre ft. of water have been impounded behind Belton Dam. This volume of water has a total surface area of 1,500 acres. According to the U. S. Army Corps of Engineers, the reservoir will be used mainly for flood control and water conservation purposes. The lake at conservation pool elevation, 569 feet above sea level, will cover 7,400 surface acres and is estimated to extend "about 22 miles up the Leon River Valley and about eight miles up the Cowhouse Creek Valley" with an irregular shoreline of approximately 110 miles. The lake at that level will have an average depth of 28 ft.

Prior to the beginning of impoundment, most of the timber including: all trees, down timber, windfalls, logs, floatable materials and fences were to be removed between elevations 554 and 569. Only that timber below elevation 554 was to remain standing to provide a measure of cover for aquatic life during the impoundment period. This timber is almost entirely restricted to the banks of the old river channel.

On the basis of the seining collections made prior to and after the beginning of water impoundments, the stocking of either channel catfish, flathead catfish or white crappie is not to be recommended since they are already present in relative abundance in the reservoir area. It is also quite obvious that no sunfish species should be stocked with the possible exception of the redear sunfish, Lepomis microlophus.

Largemouth bass have already been stocked in the new lake. These consisted of 75,000 bass fry from the U. S. Fish and Wildlife Service and 95,000 fingerlings, two inches long, from the Texas Game and Fish Commission.

SUMMARY

1. Water in the Belton Reservoir was not impounded until the March 10th starting date.
2. A total of 4,676 specimens representing 30 species were collected by seining while only 117 specimens of 14 species were taken in gill nets.
3. A checklist of 32 species representing 9 families are now known to exist in the Belton Reservoir.
4. As of June 1954, the Belton Reservoir contained a total of 1,500 surface acres and 13,144 acre ft. of water.
5. The Belton Reservoir will be used mainly for flood control and water conservation purposes.
6. Seining results indicate no need for stocking either channel catfish, flathead catfish or white crappie.
7. A total of 170,000 bass fry and fingerlings have already been stocked in the new lake.

Table 1

Seining Collections

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total No.	% of Total No.
L. platostomus			7	7										2	16	0.034
D. cepedianum					1		1				2		6	230	240	5.133
C. carpio	1	1		4	9	2	1								18	0.038
M. congestum		1												6	7	0.015
C. carpio														2	14	0.030
N. crysoleucas														2	2	0.004
N. venustus	5		6	15	15	12							3	1	366	7.827
N. lutrensis	271	114	91	152	329	535	110	46	29	36	15	1	146	6	2,045	43.733
N. volucellus	36				34			1		3					74	1.583
N. buchannani						65				6					71	1.518
P. vigilax	42	12	14	10	73	43	9	80	18	15			25		341	7.293
P. promelas	1					8	41								50	1.069
C. anomalum	60	2		5	23				4						94	2.010
I. punctatus	10	37	24	58	13	4	4								150	3.201
A. natalis		2	1							1					4	0.009
P. olivaris			6	1											7	0.015
S. mollis	3	14	15	13	29	2				6					94	2.010
F. notatus							18	7	4						22	0.470
G. affinis	3		4	1	1		120	3	31		1	10	21		195	4.170
M. punctulatus	1	2	12	3	13		7	3	2			13	8		64	1.369
M. trechid										1					1	0.002
M. salmoides					2									7	9	0.182
L. cyanellus	6			3	10		9		16			3			53	1.133
L. macrochirus	1	2		2	6									6	17	0.034
L. humilis	3		2	1	10	2	8					1		4	31	0.662
L. megalotis	23	16	39	32	98	15	46	73	27	6					375	8.020
P. annularis														106	106	2.267
H. sclerus		4						5							10	0.213
P. caprodes					5			7	1	1					14	0.299
E. spectabile	2	65	9			2		31	74	3					186	3.977
Total	468	272	230	307	671	690	412	315	350	314	19	43	213	372	4,676	98.326

Belton Reservoir - Results of Seining Collections for the Period
June 1953 through May 1954.

Table No. 2
Netting Collections

Species	1	2	3	4	5	6	Total No.	% of Total Number	Total Weight	% of Total Weight
<i>L. platostomus</i>	15	1	2		9		27	23.076	28#14oz.	37.714
<i>L. productus</i>		1	3		2		6	5.128	10# 2oz.	13.224
<i>D. cepedianum</i>	6	2			5	4	17	14.529	10#9 oz.	13.795
<i>Carpiodes carpio</i>	2	2	1		3	7	15	12.820	5#13oz.	7.592
<i>I. punctatus</i>	6	1			1		8	6.837	9#15oz.	12.979
<i>A. natalis</i>		1					1	0.855	8oz.	0.653
<i>A. melas</i>					1		1	0.855	10oz.	0.816
<i>C. coronarius</i>					3		3	2.564	11oz.	0.898
<i>M. punctulatus</i>					2		2	1.709	8oz.	0.653
<i>M. salmoides</i>	1						1	0.855	4oz.	0.327
<i>L. cyanellus</i>				1	2	1	4	3.418	11oz.	0.989
<i>L. macrochirus</i>		8			4	3	15	12.820	3# 3oz.	4.163
<i>L. megalotis</i>			1		1	8	10	8.547	15oz.	1.224
<i>P. annularis</i>	1				4	2	7	5.982	3# 14oz.	5.061
Total	25	20	9	1	37	25	117	99.995	76#9 oz.	99.997

Belton Reservoir: - Results of netting collections for the period June 1953 through May 1954.

5.
Table No. 3

Belton Reservoir - - Checklist of Species.

Family Lepisosteidae

1. Lepisosteus platostomus - shortnose gar
2. Lepisosteus productus - spotted gar

Family Clupeidae

3. Dorosoma cepedianum - gizzard shad

Family Catostomidae

4. Carpiodes carpio - river carpsucker
5. Moxostoma congestum - gray redhorse

Family Cyprinidae

6. Cyprinus carpio - carp
7. Notemigonus crysoleucas - golden shiner
8. Notropis venustus - blacktail or spottail shiner
9. Notropis lutrensis - redhorse or red shiner
10. Notropis volucellus - mimic shiner
11. Notropis buechanani - ghost shiner
12. Pimephales vigilax - parrot minnow
13. Pimephales promelas - fathead minnow
14. Campostoma anomalum - stoneroller

Family Ameiuridae

15. Ictalurus punctatus - southern channel catfish
16. Ameiurus natalis - yellow bullhead
17. Ameiurus melas - black bullhead
18. Pilodictus olivaris - flathead or yellow catfish
19. Schilbeodes mollis - tadpole madtom

Family Cyprinodontidae

20. Fundulus natalis - blackstripe topminnow

Family Poeciliidae

21. Gambusia affinis - gambusia or pot-gut minnow

Family Centrarchidae

22. Micropterus punctulatus - spotted black bass
23. Micropterus treculi - Texas spotted bass
24. Micropterus salmoides - Largemouth bass
25. Lepomis cyanellus - Green sunfish
26. Lepomis macrochirus - Bluegill
27. Lepomis humilis - orangespotted sunfish
28. Lepomis megalotis - longear sunfish
29. Pomoxis annularis - white crappie or white perch

Family Percidae

30. Hadropterus scierus - dusky darter
31. Percina caprodes - log perch
32. Etheostoma spectabile - orangethroated darter