

Report of Fisheries Investigations

Resurvey of Lakes Possum Kingdom and Mountain Creek, together with the  
Leon, Bosque, and Brazos Rivers and their  
Watersheds Located Within Region 4-B

by

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Dingell-Johnson Project F-4-R-5, Job B-21  
November 1, 1957 - October 31, 1958

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SEGMENT COMPLETION REPORT

State of TEXAS

Project No. F4R5

Name: Fisheries Investigations and Surveys of the Waters of Region 4-B.

Job No. B-21

Title: Resurvey of Lakes Possum Kingdom and Mountain Creek, together with the Leon, Bosque, and Brazos Rivers and their Watersheds located within Region 4-B.

Period Covered:

November 1, 1957 through October 31, 1958

OBJECTIVES:

To bring up to date the data collected on these waters during the past segments and provide data for use in the recommendations for fishing regulations.

ABSTRACT:

The majority of the time allocated to this job was required by the selective kill of shad in Possum Kingdom Lake since netting both before and after was needed to determine the effectiveness of the kill.

Seine and net collections recovered 26 species representing 9 families and 17 genera with the seine samples dominated by blacktail shiner and the net samples dominated by gizzard shad.

The catch of shad after the selective kill was larger than immediately before the kill indicating that the net method of sampling is unreliable except when a long period of netting is used.

PROCEDURE:

The proposed procedure for this job included net and seine checks of the Brazos, Leon and Bosque rivers as well as Lakes Mountain Creek and Possum Kingdom. High water delayed the stream work and the selective kill of shad in Possum Kingdom Lake required the use of the time allocated to this job so that this report is concerned only with Possum Kingdom Lake where an intensive inventory was made to determine the status of the gizzard shad immediately before and after the selective kill.

Net checks were made during April and May as a part of the recheck and on July 29 through 31, an attempt was made to cover the entire lake with a net and seine check. This coverage extended from Neely's slough, near the dam, to Carter Island near the confluence of Rock Creek and the Brazos River. This net check was repeated on August 26 through 28, when the nets were set at the same locations as in the July check.

RESULTS:

The check list of species from Possum Kingdom contains 38 species representing 12 families and 23 genera (Table 1). The seine and net collections made during this recheck took 26 species representing 9 families and 17 genera.

The collections made at sixteen seine stations included sixteen species of which the blacktail shiner (Notropis venustus) was the most numerous with 169 specimens followed by bluegill sunfish, the parrot minnow, and the plains red shiner with 57, 46, and 41 respectively. Plains red shiner (Notropis lutrensis) and blacktail shiner (Notropis venustus) appeared in seine samples from 10 of the 16 stations with bluegill sunfish (Lepomis macrochirus) found at 9 stations.

The gill net collections for April were dominated by longnose gar (Lepisosteus osseus) and gizzard shad (Dorosoma cepedianum) with 48.17 and 38.22 percent respectively. The May netting produced fewer gar but the catch of shad increased to 46.21 percent. The net collections of July and August showed a reduction in the percentage of shad with a rise in the percentage of almost all other species. The gill net catch of shad in July was somewhat less than that of August despite the selective kill of shad that was attempted on August 6, 1958. This appears to point up the fact that net sampling is to be considered only as an indication of a trend since there are so many variables involved in netting.

CONCLUSIONS:

The results of netting both before and after the selective kill indicate that the larger shad were not eliminated in sufficient number for effective control. This may be due to the chemical used being of insufficient strength to accomplish the intended objective since other jobs of this nature have been successful. The taking of shad in large numbers points up the need for a repetition of this work with chemicals of standard strength in an effort to attain a suitable control of gizzard shad.

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Approved by

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Date December 9, 1958

Table 1. Checklist of Fishes from Possum Kingdom Lake, June 1, 1953 through October 31, 1958

SCIENTIFIC NAME	COMMON NAME
<u>Lepisosteus platostomus</u>	shortnose gar
<u>Lepisosteus productus</u>	spotted gar
<u>Lepisosteus osseus</u>	longnose gar
<u>Dorosoma cepedianum</u>	gizzard shad
<u>Carpionodes carpio</u>	river carpsucker
<u>Ictiobus bubalus</u>	smallmouth buffalo
<u>Moxostoma congestum</u>	gray redhorse
<u>Cyprinus carpio</u>	European carp
<u>Notropis oxyrinchus</u>	sharpnose shiner
<u>Notropis brazosensis</u>	Brazos river shiner
<u>Notropis fumeus</u>	ribbon shiner
<u>Notropis umbratilis</u>	redfin shiner
<u>Notropis venustus</u>	blacktail shiner
<u>Notropis lutrensis</u>	Plains red shiner
<u>Notropis deliciosus</u>	Southern sand shiner
<u>Notropis atrocaudalis</u>	spottail shiner
<u>Pimephales vigilax</u>	parrot minnow
<u>Opsopoeodus emiliae</u>	pugnose minnow
<u>Ictalurus punctatus</u>	channel catfish
<u>Ictalurus natalis</u>	yellow bullhead
<u>Pylodictus olivaris</u>	flathead catfish
<u>Fundulus notatus</u>	blackstripe topminnow
<u>Gambusia affinis</u>	mosquitofish
<u>Roccus chrysops</u>	white bass
<u>Micropterus punctulatus</u>	spotted bass
<u>Micropterus salmoides</u>	largemouth bass
<u>Chaenobryttus gulosus</u>	warmouth
<u>Lepomis cyanellus</u>	green sunfish
<u>Lepomis punctatus</u>	spotted sunfish
<u>Lepomis microlophus</u>	redeer sunfish
<u>Lepomis macrochirus</u>	bluegill sunfish
<u>Lepomis auritus</u>	yellowbelly sunfish
<u>Lepomis megalotis</u>	longear sunfish
<u>Ambloplites rupestris</u>	rock bass
<u>Pomoxis annularis</u>	white crappie
<u>Pomoxis nigromaculatus</u>	black crappie
<u>Percina caprodes</u>	logperch
<u>Aplodinotus grunniens</u>	freshwater drum
<u>Astyanax fasciatus</u>	Rio Grande tetra
<u>*Mugil cephalus</u>	striped mullet

\*Note- This species is a marine form that has probably been introduced by bait dealers.

Table 2. Species of Fishes collected by Seining, from Possum Kingdom Lake, by Number of each species taken at each seine station, July 29 and 30, 1958.

SPECIES	SEINE STATIONS																TOTALS
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Longnose gar													1				1
Gizzard shad								5									5
Sharpnose shiner							1	1									3
Brazos River shiner								12									12
Blacktail shiner																	169
Plains red shiner								5									41
Parrot minnow								12									46
Pugnose minnow								2									18
Blackstripe topminnow					1												1
Mosquitofish								29									34
Largemouth bass							2										25
Green sunfish																	2
Redear sunfish																	4
Bluegill sunfish		3															57
Yellowbelly sunfish			1		12												11
Logperch					2												1
TOTALS	13	3	30	47	23	46	37	37	25	2	18	19	61	18	20	31	430

Table 3. Results of Gill Netting in Possum Kingdom Lake, April 22, 1958 - August 31, 1958.

Month Species	April		May		July		August		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spotted gar	5	1.31	8	3.03	4	0.7	14	2.5	31	1.75
Longnose gar	184	48.17	36	13.63	26	4.5	35	6.4	281	15.88
Gizzard shad	146	38.22	122	46.21	174	30.3	202	36.8	644	36.38
Smallmouth buffalo	8	2.10	2	0.76	51	8.9	41	7.5	103	5.82
River carpsucker			1	0.38	46	8.0	40	7.3	87	4.92
Texas gray redbhorse							1	0.2	1	0.61
Carp	1	0.26	1	0.38	4	0.7	3	0.5	9	0.51
Channel catfish	8	2.10	5	1.89	35	6.1	59	10.7	107	6.04
Flathead catfish					4	0.7			4	0.22
White bass	2	0.52			11	2.0	22	4.0	37	2.09
Spotted bass					1	0.2			1	0.06
Largemouth bass	2	0.52			15	2.6	15	2.7	32	1.81
Rock bass					1	0.2			1	0.06
Green sunfish					2	0.3	2	0.4	4	0.22
Redear sunfish	7	1.83	60	22.73	15	2.6	7	1.3	89	5.03
Yellowbelly sunfish							1	0.2	1	0.06
Bluegill sunfish	16	4.18	26	9.85	140	24.4	61	11.1	243	13.73
Longear sunfish					2	0.3	1	0.2	3	0.17
White crappie	3	0.79	1	0.38	39	6.8	45	8.2	88	4.97
Drum					4	0.7			4	0.22
<b>TOTALS</b>	<b>382</b>	<b>100.00</b>	<b>264</b>	<b>100.00</b>	<b>574</b>	<b>100.00</b>	<b>549</b>	<b>100.0</b>	<b>1,770</b>	<b>100.00</b>

