

FILE

JOB PROGRESS REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-6-R-16

FISHERIES INVESTIGATIONS - REGION 5-B

Job No. B-28 Trotline Study

Project Leader: Roger L. McCabe

J. R. Singleton
Executive Director
Parks and Wildlife Department
Austin, Texas

Marion Toole
D-J Coordinator

Eugene A. Walker
Director, Wildlife Service

October 15, 1969

FILE

SUMMARY

Trotline fishing has been neglected in the research and study of fishery scientists, so information to improve the fisherman's catch or upon which to base regulations is not available. The present survey has concentrated on interviews with trotline fishermen and on experimental bait trapping in an effort to supply such information. Much was gained in testing the interview forms and developing interviewing skills, but actual data obtained this segment was not of sufficient quantity to present conclusive statements as to gear and techniques preferred or catch obtained. The short-term bait trapping study in Lake Corpus Christi provided a combined catch of all traps which showed a tendency to capture the desired species and rough fishes instead of game fishes. The results at Lake Llano Grande showed conclusively that the traps were effective in taking Rio Grande perch.

FISHERIES INVESTIGATION - REGION 2-B

Job No. F-38 Trotline Study

Project Leader: Roger J. McCann

L. R. Stabler
Executive Director
Parks and Wildlife Department
Austin, Texas

Eugene A. Walker
Director, Wildlife Service

Walter F. Davis
D-1 Coordinator

October 12, 1959

JOB PROGRESS REPORT

State Texas

Project No.: F-6-R-16

Project Title: Fisheries Investi-
gations - Region 5-B

Job No.: B-28

Job Title: Trotline Study

Period Covered: January 1, 1968 to December 31, 1968

Background:

Trotlining, a major form of sport and commercial fishing, has had very little attention from fishery scientists. While some scientific works pertaining to the related long-line fishing in deep marine waters have been published, research to determine the status of trotlining in freshwater lakes has been neglected. A literature search has not revealed planned, long-term scientific studies undertaken to provide the lake trotline fisherman with the knowledge of techniques and materials necessary to influence his catch per unit effort and catch per unit expense.

Currently, there are no limits on the numbers of trotlines and hooks or lengths of lines which can be used in Lake Corpus Christi. Very little data exists on which to base any limits if and when they are needed.

The information that is available has been obtained from general creel censuses and from non-scientific books, pamphlets or magazine articles written by and for the fishermen. The most pertinent and directly related data which are currently on hand were obtained during a 10-month (September 1953 through June 1954) creel census on Lake Corpus Christi. Trotline fishermen comprised 61 per cent of the fishermen contacted in this census. These trotline fishermen expended 79 per cent of the total man-hours, were 77 per cent successful, caught 68 per cent of the fish recorded, generally caught the larger fish (mostly catfish), expended 6.5 man-hours per fish caught and used mainly cut fish, shrimp, white naptha laundry soap and sunfish for bait.

Objective:

To conduct a survey of the trotline fishery of Lake Corpus Christi.

Procedures:

This job (B-28) is a four-year study of trotline fishing on Lake Corpus Christi and has been underway for one year. During this first segment, interviews with trotline fishermen were conducted in an attempt to provide

basic data as well as information for executing two future phases of the study: a creel census and an experimental trotlining program to test the effectiveness of various techniques and equipment. Twenty-six fishermen were interviewed to provide preliminary data related to techniques, equipment, seasons, baits, and catch. These interviews were conducted at fishing camps or personal lake cottages on all days of the week except Sunday.

The short-term experimental bait trapping phase of the study was carried out in July and August with $\frac{1}{2}$ -inch square mesh, hardware cloth traps (Figure 1), designed to selectively trap the deep-bodied, laterally compressed Rio Grande perch (Cichlasoma cyanoguttatum) and sunfishes (Lepomis spp.). These traps were set in Lake Corpus Christi in 30 separate locations, encompassing as much variation in habitat as possible and left for varying periods of time from one to 24 hours. Cottonseed cake, range cubes (cattle feed), oats, and maize (grain) were used as baits in various combinations. Further tests were carried out on Lake Llano Grande in the lower Rio Grande Valley. This lake had an overabundance of Rio Grande perch so it was used to compare and contrast trapping results obtained in Lake Corpus Christi, where there was a more balanced fish population.

Progress:

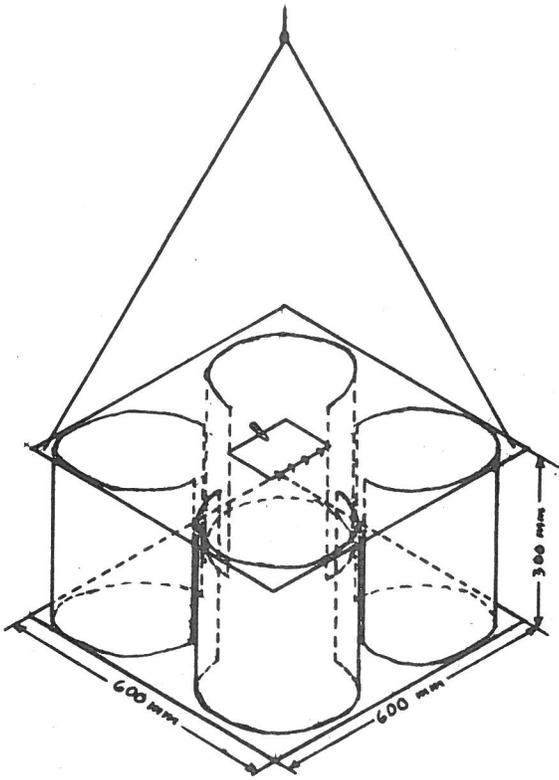
Twenty-six interviews with fishermen were conducted during the first segment of the job. The unexpected difficulty in locating trotline fishermen and the time involved in searching or waiting for these fishermen contributed to the relatively small number of interviews. The data obtained were not of sufficient quantity to form conclusions so it is presented in the form of broad ranges of low and high extremes. It is expected that the extensive interviewing in following segments will establish more limited ranges and provide grounds for more conclusive information.

The trotline fishermen contacted had from one to 14 lines in the water per party. Main (horizontal) lines were constructed of No. 36 to No. 96 nylon and ranged from 20 to 300 feet in length. The "staging" (drop or hook) lines were from 10 inches to 24 inches in length and there were six to 100 of them per main line. Hook sizes varied from 3/0 to 9/0.

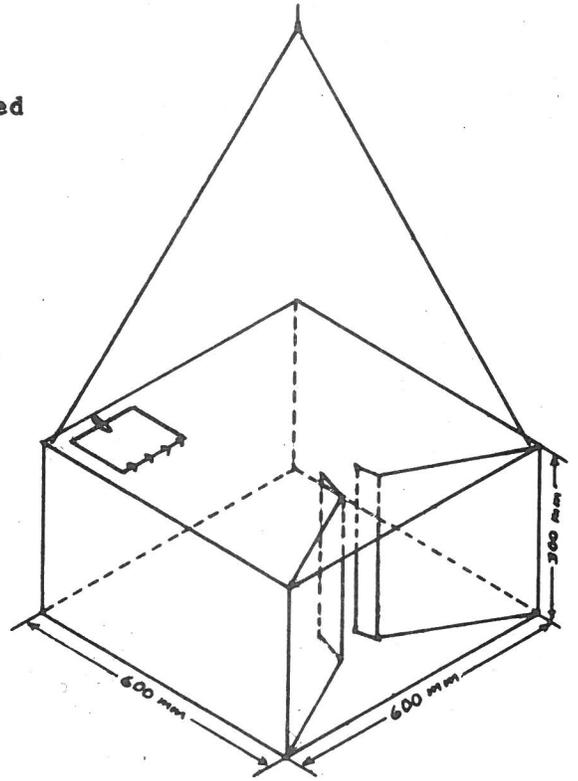
All lines were initially set out during the daylight hours. The time interval between successive "runnings" varied from three hours to six days. Trotlines were left in the water various lengths of time from two days to three years or in some cases indefinitely. Preferred seasons, wind, and water conditions were similar to those considered optimum by rod-and-reel fishermen seeking other types of sport fishes.

The 26 fishermen interviewed listed a total of 18 types of bait they used in trotline fishing. For flathead catfish (Pylodictus olivaris), Rio Grande perch was the preferred bait; while cubes of white naptha soap were used by many for both channel catfish (Ictalurus punctatus) and blue catfish (I. furcatus).

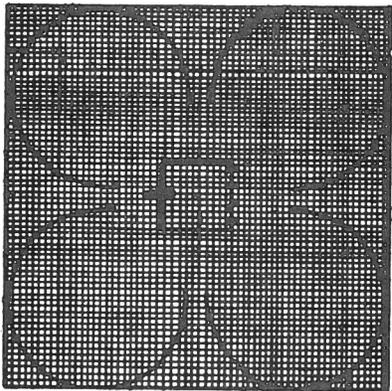
Figure 1
Bait Traps Used



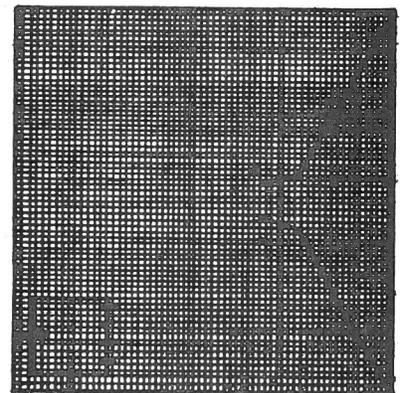
Cloverleaf Type - Isometric Sketch



V-Mouth Type - Isometric Sketch



Cloverleaf Type - Top View Diagram



V-Mouth Type - Top View Diagram

Table 1
Catch of Traps Set in Lake Corpus Christi

Common Name	Scientific Name	Number
<u>Trotline Bait Fishes</u>		
Rio Grande perch	<u>Cichlasoma cyanoguttatum</u>	8
Bluegill	<u>Lepomis macrochirus</u>	234
Longear sunfish	<u>Lepomis megalotis</u>	28
Redear sunfish	<u>Lepomis microlophus</u>	32
Green sunfish	<u>Lepomis cyanellus</u>	1
Warmouth	<u>Chaenobryttus gulosus</u>	10
<hr/>		
<u>Game Fishes</u>		
Channel catfish	<u>Ictalurus punctatus</u>	2
White crappie	<u>Pomoxis annularis</u>	4
Largemouth bass	<u>Micropterus salmoides</u>	3
<hr/>		
<u>Rough Fishes</u>		
Carp	<u>Cyprinus carpio</u>	<u>8</u>
	Total	330

Table 2
Catch of Traps Set in Lake Llano Grande

Common Name	Scientific Name	Number
<u>Trotline Bait Fishes</u>		
Rio Grande perch	<u>Cichlasoma cyanoguttatum</u>	228
<u>Game Fishes</u>		
None		0
<u>Rough Fishes</u>		
Carp	<u>Cyprinus carpio</u>	2
Threadfin shad	<u>Dorosoma petenense</u>	<u>38</u>
		Total 268

There was no evident "ideal" depth of water for a trotlining location. Water depth at trotlining locations ranged from two feet to 30 feet. The depths at which hooks were set varied from six inches to 30 feet. No particular preference was indicated between mid-lake (open water) and near-shore locations.

Of the catches reported in this survey there were 79 channel catfish (3/4 lb. to 3 1/2 lb.), 49 blue catfish (1/2 lb. to 12 lbs.), and 19 flathead catfish (2 lbs. to 27 lbs.). Of those fishermen reporting catches at the "run" previous to interview time, a catch of 0.54 fish/man-hour was calculated. This is misleading, however, since those not reporting catches did not show the number of hours fished either and could not be included in the calculations. Corrections in the interview form should remedy this error in the following segments.

All persons interviewed were males from 37 to 74 years of age. Their occupations were quite varied, including: farming, oil refinery labor, insurance, law, sales, engineering, and others.

The catfish tagging phase was not begun this segment but will be carried out in conjunction with the experimental trotlining phase in the following segments.

The short-term bait trapping study was undertaken as preliminary testing to determine if Rio Grande perch and sunfishes could be selectively trapped for use as live bait by trotline fishermen. Although no conclusive data is available, certain trends were noticed and will be pursued in the next segment.

All of the baits used in the traps proved to be effective in attracting species used as trotline bait. A total of 330 fishes were taken in 30 samples from Lake Corpus Christi. The catches of all traps combined showed a tendency to catch bait fishes over all others by a large ratio (Table 1).

Collections made on Llano Grande Lake, near Weslaco in the Rio Grande Valley, provided data to test the effectiveness of the traps in taking Rio Grande perch from a lake known to have an extremely large population of this species. A total of 268 fish was taken, most of which were Rio Grande perch (Table 2). The remainder were rough fish and none were game fish even though game fish were known to be present in the lake.

Prepared by Gordon P. Garwood
Assistant Project Leader

Approved by Marion Toole
Coordinator

Date October 15, 1969

Elgin M. C. Dietz
Inland Supervisor