

JOB COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-5-R-12

FISHERIES INVESTIGATIONS AND SURVEYS OF THE WATERS OF REGION I-B

Job No. C-1 Pollution Studies

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State of Texas

Project No. F-5-R-12

Name: Fisheries Investigations and Surveys of the Waters of Region 1-B

Job No. C-1

Title: Pollution Studies

Period Covered March 1, 1964 - February 28, 1965

Objectives:

To determine the source and nature of pollution.

Procedures:

1. Where pollution was encountered an attempt was made to (a) trace the pollutant to its source, (b) determine responsibility, and (c) evaluate the extent of damage.

2. Where pollution was suspected inquiries were made, observations were recorded, and evidence of the frequency of pollution were sought.

3. Where extensive pollution was encountered, water samples and photographs were collected and turned over to authorities responsible for the public health.

Results:

Pollution investigations were limited to determining the cause of six fish kills that occurred between August 18, 1964, and October 6, 1964. Essential details for each investigation are included in chronologic summaries.

August 17, 1964

Reported Pollution of the South Concho River Above Twin Buttes Reservoir

Most of the area affected was contained within the old stream banks at the upper end of the diversion reservoir of Twin Buttes Project, and situated immediately below Gardner Dam on the South Concho River. The area in which dead fish were observed is estimated at less than 7 acres. Several thousand sunfish, largely bluegill (Lepomis macrochirus) and green sunfish (L. cyanellus) were killed. Positive determination of the cause of death was not made. However, the evidence obtained strongly indicated mortality was due to lack of dissolved oxygen in the water and an excessive quantity of dissolved carbon dioxide. These properties, detrimental to fish life, were created by the collapse of an enormous quantity of aquatic vegetation and the process of decomposition that followed. Loss of fish was not sufficient to produce a significant effect on game fish production.

August 18, 1964

Reported Pollution in Twin Buttes Reservoir, Lake Nasworthy and the North Concho River

In all of the above waters fish were dying in cut-off holes that had been drastically reduced by evaporation and seepage. Fish lost in Twin Buttes and Lake Nasworthy were of significant value. In the Middle Concho-Spring Creek Basin of Twin Buttes Project, shallow pond-like excavations were created in the process of constructing the dam. Later these depressions filled with water and were stocked with game fish and desirable forage minnows. By the summer of 1964 these pools had been reduced by drouth until only a few inches of water remained. At this time many thousands of red shiners (Notropis lutrensis) and juvenile largemouth bass (Micropterus salmoides) were lost when the water became stagnant. The entire Red Slough area of Lake Nasworthy was similarly stocked and subsequently reduced by drouth until fish were lost in identical manner. The fish kill in the North Concho River was restricted to several pools immediately above the reservoir. The net result of this action was more beneficial than damaging. Several thousand gizzard shad (Dorosoma cepedianum) a few white bass (Roccus chrysops) and a few carp (Cyprinus carpio) were killed by excessive crowding and accompanying stagnation. No evidence of pollution was found as a result of investigations carried out to determine the cause of these fish kills.

September 8 through October 6, 1964

Pollution of the Concho River

Between the above dates pollution and unfavorable water conditions created by flooding killed hundreds of thousands of fish in the Concho River. Dead fish were found in three localities above Loweke Bridge. A few sunfish and a few hundred gizzard shad were killed in the area immediately below Lake Nasworthy Dam when "dead" water was released from the bottom of the lake. A similar kill accompanied the release of water from Lone Wolf Dam in San Angelo. Other fish were killed in Santa Fe Park; however, the cause was less positively established. It is suspected that many toxic substances used in horticultural practices were washed into the stream from the surrounding city, and probably contributed to this later kill.

Beginning in the vicinity of the Loweke Bridge and extending to a point two miles below the confluence with the Colorado, thousands of fish were killed. In addition to gizzard shad and carp, an enormous quantity of smallmouth buffalo (Ictiobus bubalus) and flathead catfish (Pylodictis olivaris) were destroyed. In 1 mile of the stream where a talley of game fish was recorded, 68 flatheads weighing from 6 to 60 pounds were observed. Water analysis by the state health department detected deldrin in some of the samples taken from the Paint Rock area; however, since this chemical is a commonly used insecticide, the establishment of individual responsibility was impossible.

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