SEGMENT COMPLETION REPORT

Investigations Projects

State of TEXAS

Project No. F7R4 Name: Fisheries Investigations and Surveys of the Waters of Region 1-B.

Job No. F-1 Title: Experimental Introduction of Fish Species.

Period Covered: June 1, 1956 - May 31, 1957

ABSTRACT:

A total of 1,358 redfish and 182 speckled trout have been caught along the Texas coast and transferred to Lake Kemp. Growth rate of these introduced species has not been determined, and there are no indications of reproduction of either species.

The rapid rate of growth, excellent condition, and a token spawn of white bass previously stocked, indicate that Buffalo Lake is ideal for the introduction of white bass. Additional stocking of this species into Buffalo Lake has been postponed in order to observe results of previous stocking and until experimental selective-kill treatments for control of rough fish have been perfected or completed.

Efforts were made to protect all of introduced species by informing fishermen in the Lake Kemp and Buffalo Lake areas of the stockings and their importance. Several excellent articles, accompanied by pictures of the introduced species, were published. Posters were also placed in appropriate locations to give descriptions of the fish and instructions for returning them to the water and reporting their catch to proper authorities.

OBJECTIVES:

To experimentally introduce non-native species to provide either new sport species to improve the quality of sport fishing or to add a predacious species to aid in the control of rough fish and forage fish species.

TECHNIQUES:

In waters where survival conditions were considered favorable, sport species, not native to those waters, were experimentally introduced to aid in the development of better sports fishing. Predacious species were experimentally introduced into waters lacking in efficient predators to aid in the natural control of rough fishes. Experimental introductions included the following fish species:

1. Redfish (Scianops ocellata) and speckled weakfish (Cynoscion nebulosus) were collected from the Gulf of Mexico along the Texas Coast and stocked into the extremely saline waters of upper Big Wichita River and Lake Kemp, to provide a game fish for the upper river and a new game fish for Lake Kemp.

2. White Bass (Roccus chrysops) were stocked in Buffalo Lake to provide a new game species and a badly needed open-water predator of the gizzard shad and other rough fish species.

3. Plans were made to introduce the silverside (Labidesthes sicculus) in the lakes of the Big Wichita and Little Wichita River Systems, as a possible additional open water forage fish.

ACKNOWLEDGMENTS:

Dr. Walter Dalquest, whose employment with the Texas Game and Fish Commission terminated in October 1956, assisted in this work for the first five months of the segment.

For assistance with our work in collecting species of marine fishes, we are greatly indebted to personnel of the Marine Fisheries Division of the Texas Game and Fish Commission, and especially to Assistant Director, Robert J. Kemp, Jr., who devoted considerable time and effort to the location and capture of the transplanted species. For aid in transporting specimens collected, we wish to thank Hatchery Superintendents Houston Maples, Harmon Henderson and H. W. Williams.

FINDINGS AND DISCUSSION:

Many difficulties are encountered in transplanting marine species from salt water to fresh water. Adverse weather conditions greatly hampered the capture, and especially, the temporary storage of species to be introduced before transporting. It was necessary to control temperature and gradually decrease salinity of the water in which the fish were transported during the 500 mile trip from the Texas Coast to Lake Kemp. Failure to do this increased mortality. Data concerning the ratio of fish captured to fish stocked was not recorded, but a relatively small percentage of marine species captured was successfully stocked into Lake Kemp, due to the many difficulties involved.

Reliable information concerning the growth rate of redfish and weakfish (speckl trout) in Lake Kemp has not been determined. The capture of either of these species in Lake Kemp by seining is practically impossible due to the vast water area (22,800 acres) and the many trees, rocks and stumps on the lake bottom. Capture by gill netting was not attempted because of the possibility of killing the introduced species.

Numerous reports were received during the segment period of redfish and trout being caught by sports fishermen. An attempt was made to investigate each report of capture, but most of them were found to be either falsehoods, practical jokes or mistaken fish identifications. Several of these reports could have been authenic, however, but positive identification could not be made because the fish had been eatern and their remains destroyed by the time the report was checked. On several occasions, fishermen seining for bait reported catching fingerlings of redfish or trout, but in every case, these fish were identified as logperch (Percina caprodes).

Experimental introductions made through May 31, 1957, are as follows:

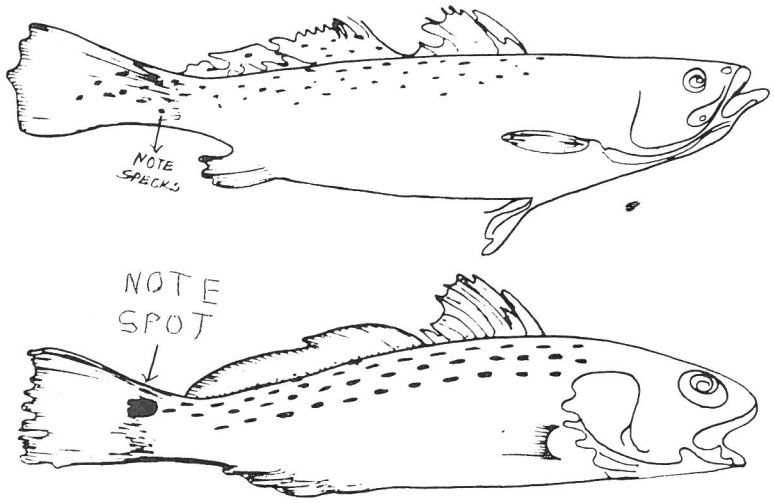
REDFISH. Of the many redfish captured during this segment period, only eight were successfully stocked into Lake Kemp. This makes a minimum total of 1,358 redfish transferred to fresh water under this job.

SPECKLED WEAKFISH. Fifty-two speckled weakfish were successfully stocked into Lake Kemp during this segment, bringing the total number to 184. Contrary to the opinions of most marine biologists, as well as other persons familiar with salt water species, the weakfish was just as easy, if not easier, to transport and transplant as redfish. They were cetrainly more available and easier to catch by hook and line fishing along the Texa Coast than redfish.

REDFISH

AND SPECKLED SEA TROUT

HAVE BEEN STOCKED IN LAKE KEMP



IF YOU CATCH ONE OF THESE FISH RETURN IT TO THE LAKE AND REPORT FISH AND SIZE TO GATEKEEPER — CONCESSIONAIRE OR GAMEWARDEN

Poster Used to Inform Fishermen in the Lake Kemp Area of Experimental Introductions. They are 19" by 21" in Actual Size.

WHITE BASS. No additional white bass were stocked in Buffalo Lake during this segment period. Additional stocking of this species has been postponed in order to observe results of previous stockings and until experimental chemical treatments for control of rough fish have been completed, or else perfected to the extent to be nonlethal to white bass.

The original stocking of white bass in Buffalo Lake began in the summer of 1954, with twenty-eight adults from Lake Diversion. In July 1955, an additional 78 individuals of various sizes were released. Additional releases were planned for later in that same year, but in August 1955, fishermen began to take small white bass in considreable numbers. This was most encouraging and apparently the results of the twenty-eight fish released the previous year. Because white bass seemed established in the lake, no additional introductions were considered necessary at that time.

Apparently, conditions in Buffalo Lake were ideal for the introduction of white bass, as well as for their first progency, because 16 were caught in gill nets during the segment period from June 1, 1955 through May 31, 1956, whose "K" factors ranged up to 3.5. Although few were recovered by gill nets during this period, reports of recovery by sports fishermen were common.

In May 1956, and again in June 1957, Buffalo Lake was treated chemically for a selective-kill on gizzard shad and carp. On both occasions white bass were observed in small numbers among the dead fish. Since that time, however, they have not been taken by gill nets, and only occasionally by sports fishermen. Therefore, in consideration of the fact that white bass are very susceptible to the effects of rotenone, additional stocking of white bass in Buffalo Lake has been postponed until techniques have been developed that produce greater selectivity or until all chemical treatments in Buffalo Lake have been completed.

BROOK SILVERSIDES. Plans were made to introduce the brook silversides (Labidesthes sicculus) in the lakes of the Big Wichita and Little Wichita River Systems as a possible additional open water forage fish. However, this species migrated upstream in large numbers during the spring floods of 1957 and stocked themselves naturally into Lake Wichita, and possibly, Kickapoo and Diversion.

EFFORTS TO PROTECT INTRODUCED SPECIES:

Immediately after each stocking of redfish and weakfish into Lake Kemp, newspaper publishers in Wichita Falls and the Lake Kemp area were notified and provided with pictures of the introduced species. Several excellent articles were published to inform Lake Kemp anglers of the experimental stocking and to instruct them to return these fish to water and report their catch to proper authorities. Posters were placed at all gates and concessions around Lake Kemp, as well as public metting places in area towns which give descriptions of the fish and instructions for returning them to water and reporting their catch. An example of these posters is given in Figure 1.

The stocking of white bass in Buffalo Lake was also given newspaper coverage in Amarillo and Canyon, Texas. The season has been officially closed on this species at Buffalo Lake, and informative posters are in the process of being printed.

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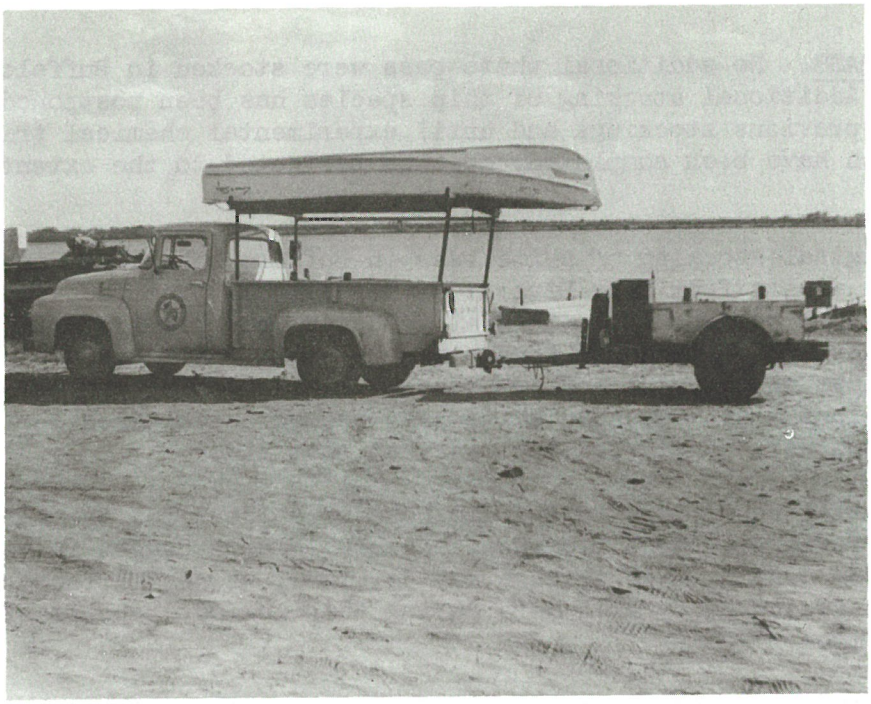

Equipment Used in the Capture and Transportation of Introduced Species. This Unit Transports two Average Sized Hatchery Vat Loads of Fish in Addition to Most of the Equipment Used in their Capture.

Close-up of Transport Trailer. This Unit can be Released from the Pickup, Equipped with a Battery and used Separately During Fishing and Seining Operations.