

Segment Completion Report

Investigations Projects

State of TEXAS

Project No. F-7-R-8

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

Job. No. F-1

Title: Experimental Introduction of Fish
Species.

Period covered:

January 1, 1960 - December 31, 1960

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 stocked into waters lacking in efficient predators to aid in the natural control of rough fishes. Experimental stockings included the following fish species:

1. Red drum, Scianops ocellata, and spotted seatrout, Cynoscion nebulosus, were collected from the Gulf of Mexico along the Texas coast and stocked into the 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. Flathead catfish, Pylodictus olivaris, were collected from Lake Stamford and stocked into Rita Blanca Lake, near Dalhart, to increase predation on golden shiners and bullhead catfishes.
3. Striped bass, Roccus saxatilis, were secured through the Fisheries Division, California Fish & Game Commission, transported to Texas by air, and stocked into Lake Diversion. The purpose of this introduction is to provide an additional game species and to increase predation on rough fish species. Also, if striped bass reproduce successfully in Lake Diversion, their progeny will be collected and stocked into other Texas waters.
4. Plans continued and preparations were made to experimentally introduce gar, Lepisosteus sp., into Lake Marvin to increase predation on sunfish.

FINDINGS AND DISCUSSION

Red Drum and Spotted Seatrout

Prior to this segment period, a total of 1,382 red drum and 184 spotted seatrout

had been captured along the Texas coast and experimentally stocked in Lake Kemp. Details on the capture and transplanting of these species are given in the reports for F-7-R-3, Job F-1; F-7-R-4, Job F-1; and F-7-R-5, Job F-1. Due to the great expense and many difficulties involved, no additional stockings of these two species have been made since May, 1957. Work since that time has been confined primarily to determining results and benefits of previous stockings.

Reliable information concerning survival, growth rates and reproduction of the introduced marine species is still lacking. Several attempts have been made during the past two years to collect some of the introduced species by gill nets and seines, but none have been taken. Several reports of catching red drum and spotted seatrout by sports fishermen and bait seiners have been received, each of which was investigated for authenticity. Practically all specimens collected by bait seiners were identified as logperch, Percina caprodes. Several of the other reports could have been authentic, but positive identifications could not be made because the fish had either been released or eaten and their remains destroyed by the time the report was investigated. Since credence will not be given any report unless a specimen is produced and positive identification is made, all posters around the lake have been changed to instruct fishermen to keep fish suspected of being introduced marine species and to present them to gatekeeper, concessionaire, game warden, or biologist for positive identification.

Lake Kemp was resurveyed during this period of study in an effort to determine the status of these experimental introductions. Due to the large size of Lake Kemp, lack of equipment, and the tremendous amount of work involved, netting could not be extended to cover the entire area of the lake in one night. Therefore, for expedite the lake was divided into three sections, and each section was netted separately for three consecutive nights from June 6 - June 10, 1960. Nets were somewhat evenly distributed throughout the lake in water depths ranging from three feet to fifty feet deep. Various mesh sizes were used, and some nets were set at the surface while others were set on the lake bottom. The total footage of gill net used during the three nights of netting was approximately 9,500 feet. Check-seining was done with twenty foot minnow seines.

The total catch for three nights of netting was 1,442 fish comprising 1,557 pounds. Seining produced 674 fish. Complete details of this resurvey are given in the report F-7-R-8, Job B-14. Not a single specimen of either of the introduced species was taken in gill nets, nor was any offspring of either species taken by seining. These results are not too discouraging, however, because even if all the marine species survived the transplant, there would be an average of only one per each seven surface acres. If there had been any reproduction of these species, however, it seems likely that one or more of the offspring could have been captured.

Efforts will be increased at Lake Kemp during the next segment period to determine status of these experimental introductions. Plans are to net, trap, and seine extensively from the dam to the headwaters and tributary streams in an effort to catch a specimen that was either stocked originally or a progeny that was spawned in Lake Kemp. Sufficient time has lapsed since the original stocking for reproduction of both red drum and spotted seatrout, if it is going to occur.

No additional stockings of these marine species into Lake Kemp or any other waters in Region 1-B are planned until the feasibility and benefits of the work

accomplished to date have been determined and the cost justified.

Flathead Catfish

Flathead catfish were experimentally introduced into Rita Blanca Lake in an effort to restore balance by controlling excessive populations of golden shiners and bullhead catfish, as well as threatening populations of carp and goldfish.

In November, 1959, 288 flatheads were captured from Lake Stamford and transferred to Rita Blanca. This was a very successful operation, having lost only three out of the 288 fish that were transported during sub-freezing temperatures. These fish ranged from three to twenty-eight pounds. The average weight was 11.1 pounds and comprised a total weight of 3,171 pounds.

The primary purpose of the introduction of these fish, which were stocked at the rate of one per acre, was to increase predation on golden shiners and bullhead catfish. No restrictions were placed on their capture by sports fishermen, however, which makes them an additional sports fish for the upper Panhandle region.

Of the 285 flatheads originally stocked in November, 1959, forty have been found dead during the past 13 months by the local game warden and lake management personnel. Causes of this mortality are not known for certain. There are several possibilities, including insecticides and organic pollution from watershed feed lots, winter freeze-kills, foul-hooking and hook-swallowing. In addition to those found dead, fourteen have been reported caught by sports fishermen. This leaves a total of approximately 230 flatheads in the lake.

Rita Blanca Lake was resurveyed on several occasions during this period of study in conjunction with Job B-16 (Experimental Management of the Rita Blanca Lake Fishery). Positive proof that flatheads are surviving and thriving in their new homes was obtained during the survey conducted in May, 1960. Thirty-three flatheads were taken by 1200 feet of gill nets set on the night of May 18. These fish were released immediately after capture in order to prevent mortality. All were in excellent condition, and on several occasions, males and females were taken very close together in the same net, indicating that they may be pairing-off or mating.

In order to enhance reproduction, thirty artificial spawning devices were installed in various locations around the lake in June, 1960. Concrete culverts (12 inches in diameter and 36 inches long) were plugged at one end and placed in depths of four to ten feet deep. After sufficient time and opportunity to reproduce has been permitted, some of the stomachs from the originally-stocked flatheads will be collected and examined to determine the extent of their depredation on golden shiners and bullhead catfish.

Rita Blanca Lake will continue to be surveyed periodically to detect any changes in relative abundance of species that may result from the introduction of this reputedly very efficient predator.

Striped Bass

Approximately 800 striped bass were transplanted from the California Delta to Lake Diversion on December 7, 1960. These fish were secured through the Fisheries Division, California Fish and Game Commission, and transported by air from Sacramento

to Wichita Falls. The purpose of this introduction is to provide an additional game species and to increase predation on rough fish species. Also, if striped bass reproduce successfully in Lake Diversion, their progeny will be collected and stocked into other Texas waters.

These young-of-the-year stripers were fairly uniform in size and averaged four inches in length. Positive proof that they survived the transplant was obtained during the natural history study collection at Lake Diversion on January 17, 1961, when a striped bass was found in the stomach of a white bass. This striper had grown approximately $1 \frac{3}{8}$ inches in forty days. Another striped bass was found in the stomach of a large white crappie which was caught by a local game warden in January, 1960.

Although regulation will probably be necessary for the protection of this experimental introduction, none has been imposed up to the time of this writing. One of the biggest problems anticipated is the similarity of the striped bass to the white bass, which is numerous in Lake Diversion. Since these two species are quite similar in appearance until they exceed ten inches in length, the average sports fishermen will experience considerable difficulty in distinguishing the difference between them. Consideration has been given to closing the season on striped bass until they have had an opportunity to spawn. Also, a ten inch limit on both white bass and striped bass is being considered.

The status of this experimental introduction will be checked each month in conjunction with a natural history study (Job B-15) being conducted at Lake Diversion.

Gars (Lepisosteus sp.)

Arrangements have been completed for the stocking of gar, most probably longnose gar, Lepisosteus osseus, in Lake Marvin as a natural control of excessive sunfish populations. To prevent reproduction and to exercise controls on the introduced gars, only males will be stocked. These fish will be collected from lakes in the Wichita Valley during late spring and immediately prior to the spawning season so that sex can be determined by external examination.

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