SEGMENT COMPLETION REPORT

Investigations Projects

State of TEXAS

Project No. F7R5 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, 1957 to May 31, 1958

ABSTRACT:

A total of 1,382 redfish and 184 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. No additional stockings of marine species into Lake Kemp are planned until the feasibility and benefits of the work accomplished to date has been determined and the cost justified.

A total of 1,420 white bass was stocked into Buffalo Lake during this study period. Conditions that are conducive to the spawning of white bass have not been afforded in Buffalo Lake since the stocking, and there are no indications of their reproduction up to the time of this writing.

Periodic surveys will be continued on Lakes Kemp and Buffalo in order to determine the status of these experimentally introduced species.

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 stockings included the following fish species:

I. 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.

FINDINGS AND DISCUSSION:

REDFISH AND SPECKLED WEAKFISH

Prior to this segment period, a total of 1,382 redfish and 184 speckled weakfish had been captured along the Texas Coast and experimentally stocked in Lake Kemp. Due to the great expense and many difficulties involved, no additional stockings of these two species were made during the segment covered by this report. Work on this job has been confined primarily to determining results and benefits of the previous stockings.

A brief history of experimental introductions of these marine species to fresh water is as follows:

REDFISH. The first stocking of redfish occurred in 1954, before this job was approved. Fifty-eight young-of-the-year individuals were captured near Rockport and stocked in Lake Kemp near the Cara Blanca Camp.

In June, 1955, twelve large redfish were placed in Lake Kemp. These individuals weighed from one to three pounds each.

In August, 1955, two redfish weighing approximately one-half pound each were released, incidental to the first stocking of speckled weakfish.

In October, 1955, two yearlings were released.

In March, 1956, 1,603 redfish fingerlings were transferred to both Lake Kemp and Salt Creek, a saline watershed stream. Approximately 150 died in transit, and an additional 150 are thought to have died shortly after release. Probably, 1,300 fingerlings that were in good condition survived the transfer.

In November, 1956, a sizeable load was caught, but only four young-of the-year survived the trip.

In May, 1957, four yearlings were successfully stocked.

SPECKLED WEAKFISH. The first weakfish (speckled trout) planting occurred in August, 1955, when 25 specimens from seven to twelve inches in length were released.

In October, 1955, 9 yearlings and 9 fingerlings were stocked.

In March, 1956, 89 fingerlings were placed in Lake Kemp.

In July, 1956, fifteen adult trout were successfully stocked.

In September, 1956, twenty-eight trout of variable sizes, none of which was believed to be over one year old, were transferred.

In May, 1957, the final stocking of 9 trout were placed in Lake Kemp.

Reliable information concerning the growth rate of these introduced marine species is still undetermined. Capture by gill netting was not attempted until only recently because of the possibility of killing or injuring these very valuable fishes, and reports from sports fishermen are seldom acceptable. Attempts were made to investigate each of the numerous reports of capture by fishermen, but most of them were found to be either falsehoods, practical jokes or mistaken fish identifications. Several of these reports could have been authentic, however, but positive identifications could not be made because the fish had been eaten and their remains destroyed by the time the report was checked.

On May 26 and 27, 1958, approximately 2400 feet of gill nets were set in Lake Kemp, from the headwaters to the dam, in an effort to determine the status of redfish and speckled trout. Check-seining was also done insofar as possible, in areas devoid of stumps, rocks and deep water. None of the introduced species of any size were taken in the nets or seines. This is not surprising, however, because these species could be very plentiful in the 22,800 acres of Lake Kemp and avoid capture in an overnight set with only 2400 feet of gill net. Opportunities for more thorough checks on these species will be afforded during the next segment when natural history studies will be conducted on rough fish species in Lake Kemp. The lake will be netted, trapped and seined extensively from the dam to the headwaters and tributary streams, and the possibility of taking redfish and speckled trout will be much greater than at any time since their introduction.

No additional stockings of marine species into Lake Kemp are planned until the feasibility and benefits of the work accomplished to date have been determined and the cost justified.

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 considerable 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 progeny, 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 that 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. During the survey conducted to determine results of the treatments, white bass were not taken in gill netting nor seining collections. Therefore, in consideration of the fact that white bass are very susceptible to the effects of rotenone, it was decided to postpone additional stocking of white bass in Buffalo Lake until techniques have been developed that produce greater selectivity or until all chemical treatments in Buffalo Lake have been completed.

During the routine fisheries survey in July, 1957, it was obvious that shad were replenishing themselves with amazing rapidity. Therefore, the decision was made to restock white bass to assist in the biological control of gizzard shad, and to discontinue all chemical treatments.

From July, 1957 through October, 1957, a total of 1,420 white bass, mostly fingerlings and yearlings, were stocked in Buffalo Lake. Although very few white bass have been taken in the netting and seining collections of routine monthly surveys since that time, reports of capture by sports fishermen are common.

Conditions that are conducive to the spawning of white bass have not been afforded in Buffalo Lake since the last stocking. Rains that have been common in practically all other parts of Texas failed to occur on the watershed of Buffalo Lake, and the lake has been reduced to a very low level. Being deprived of running water in the tributary stream and wave-swept sandy beaches, the white bass have apparently failed to spawn up to the time of this writing.

Although all project work, except for an occasional re-survey, has been discontinued at Buffalo Lake, it will be checked periodically to determine the status of the white bass.

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