

**FISH POPULATIONS OF FAIRFIELD RESERVOIR, TEXAS
TEN YEARS AFTER IMPOUNDMENT AND THE EFFECTS
OF THE INTRODUCTION OF TILAPIA AUREA**

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Gillnet, seine, and trawl samples were taken monthly, June, 1979 through June, 1980, to determine species composition, relative abundance, and distribution of fish species within Fairfield Reservoir near Fairfield, Freestone County, Texas. The effects of the introduction of Tilapia aurea on native fishes was investigated using these data. Hydrological parameters were measured concurrently with catch data. Twenty-nine species and two hybrid fishes were collected. Gillnet sampling resulted in the capture of 23 species of which seven comprised 90 percent of total catch. The seven were: Tilapia aurea, Lepomis macrochirus, Morone chrysops x M. saxatilis, Ictalurus punctatus, Dorosoma cepedianum, Micropterus salmoides and Cyprinus carpio. Seine catches were comprised of 12 species of which Menidia beryllina, Dorosoma petenense, and T. aurea constituted 95 percent of catch. Seven species were taken in trawls with D. petenense comprising 98 percent of catch. Mean catch-per-unit-effort of game fish species has increased since impoundment. The decline in the ratio of game:non-game species was due to the expansion of T. aurea in the lake. Native species likely to be affected by continued increase of tilapia include D. cepedianum, Cyprinus carpio, Notropis lutrensis, Pimephales vigilax, Carpionodes carpio, Lepomis species, M. salmoides, and Pomoxis species. Abundant predators, especially Morone hybrids, may also have contributed to population changes already observed in these species. Predation by Monroe hybrids may account for the large size attained by T. aurea in Fairfield Lake. The feasibility of a commercial harvest of T. aurea should be considered.

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