

**COMPETITIVE INTERACTIONS BETWEEN THE EXOTIC BLUE
TILAPIA, SAROTHERODON AUREUS, AND LARGEMOUTH BASS,
MICROPTERUS SALMOIDES, IN A HEATED RESERVOIR**

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The purpose of this study was to assess the impact of the exotic blue tilapia (Sarotherodon aureus) on a population of largemouth bass (Micropterus salmoides) in a heated reservoir (Lake Fairfield in Freestone County, Texas).

The study was conducted from January 1983 to November 1984. An analysis of the relative abundances of the two species revealed that both adult and young-of-the-year tilapia were significantly most abundant in the cove adjacent to the mouth of the heated effluent. No clear correlation between catch-per-unit-effort (CPUE) and water temperature was found, however.

There were no significant differences in CPUE for adult bass at the various sampling stations. Bass reproduction, however, appeared to be significantly most successful in the cove that displayed the most extensive amount of inundated brush on its shores. Inundated vegetation may have provided protective cover for bass fry at a time when they would have otherwise been vulnerable to predation.

A winterkill in December 1983-January 1984 significantly depressed the tilapia population, but it had no impact on the bass population.

High tilapia concentrations have been reported in the literature to inhibit bass spawning. This appeared to be the case in Fairfield Reservoir. In April 1983, high gonosomatic indices (GSI's) were found in sexually mature female bass collected in the cove where bass reproduction appeared to be least successful and mature tilapia were most abundant (the cove at the mouth of the heated effluent). High GSI's in the absence of corresponding reproduction indicate failure of bass to spawn, presumably due to high densities of tilapia.

Bass GSI's dropped significantly from April 1983 to April-May 1984. This drop corresponded to a drop in the tilapia population due to the above-mentioned winterkill. Bass reproduction appeared to be significantly more successful in 1984 than it had been in 1983, presumably due to the release of spawning inhibition by tilapia.

Bass and tilapia in the 0-60 mm SL range appeared to compete for food. This competition probably contributed to low bass recruitment in 1984 (young tilapia were most abundant in 1984).

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