EFFECTS OF A REDUCTION OF BLUE TILAPIA OREOCHROMIS AUREUS ON THE ICHTHYOFAUNA OF A POWER-PLANT RESERVOIR

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A power-plant shutdown during December 1983 resulted in an extensive kill of blue tilapia Oreochromis aureus and provided an opportunity to examine the response of various fishes of Lake Fairfield (Texas) to the reduction of this highly successful and aggressive exotic. Gill nets, seines, and fyke nets were used to collect length, weight, and abundance data on fishes from February 1985 to January 1986, and these results were compared to data collected prior to O. aureus die-off.

The mean catch-per-unit effort (CPUE) and mean coefficient of condition (K) of gizzard shad Dorosoma cepedianum and channel catfish Ictalurus punctatus increased, and the CPUE of O. aureus decreased substantially following the partial coldkill. Feeding interactions and possible O. aureus predation on young I. punctatus may help explain these results. The seine CPUE of red shiner Notropis lutrensis and inland silverside Menidia beryllina also increased over previous results from Lake Fairfield, indicating that O. aureus may have been negatively affecting the reproductive success of these species. However, the decline in abundance of the hybrid bass Morone chrysops x M. saxatilis also probably contributed to the increased abundance of these fishes.

Largemouth bass Micropterus salmoides (CPUE) and Young-Adult Ratio (YAR) increased and Proportional Stock Density (PSD) decreased following the O. aureus reduction. These data suggest that the dense O. aureus population prior to the coldkill had suppressed the reproduction and recruitment of this species. No evidence of changes of bluegill Lepomis Macrochirus abundance was observed. Mean CPUE data indicate that the O. aureus population recovered to its former level of abundance within two years after the coldkill.

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