

Research Note

THE CULTURE OF CHANNEL CATFISH IN EXTENSIVELY MANAGED PONDS STOCKED WITH TILAPIA AND PREDATORY FISH¹

Farm ponds are popular in the continental USA for recreational fishing, irrigation, and as a source of supplemental income. Such ponds typically receive minimal management inputs primarily in the form of occasional applications of fertilizer to increase productivity and reduce growth of aquatic macrophytes. The combination of predator and forage (prey) species is required for sustaining yields of harvest-size fish. Largemouth bass, *Micropterus salmoides*, a predator species, and bluegill, *Lepomis macrochirus*, a forage species, are most often recommended. Channel catfish, *Ictalurus punctatus*, may also be stocked in addition to largemouth bass-bluegill combinations with good growth of all species. In the southeastern USA, channel catfish fingerlings stocked at 124 to 247 fish per hectare normally attain about 0.35 to 0.45 kg in 6 months without supplemental feeding^{2,3}.

In the tropics, *Tilapia* spp. are often more abundant and appear to be a suitable substitute for bluegill as a forage for predators^{4,5}. However, the literature does not indicate whether channel catfish can grow well when stocked with tilapia and predators in extensively managed systems. The efficacy of such a stocking regime was tested at the Lajas Research and Development Center, Agricultural Experiment Station, University of Puerto Rico.

Between March 13, 1981, and September 8, 1982, a 0.77-ha pond was stocked with 400 largemouth bass and 44 tucunaré, *Cichla ocellaris* per ha in efforts to stabilize the previously existing *Tilapia* spp. population. Predator and forage densities fluctuated as a result of natural mortality and recruitment, periodic harvesting, and re-stocking. This pond serves as a water re-use reservoir for several smaller ponds. It receives considerable nutrient input from these ponds, so a heavy algal bloom was maintained throughout the study period. On February 2, 1982, channel

¹ Manuscript submitted to Editorial Board January 25, 1984.

² Davies, W. D. 1973. Managing small impoundments and community lakes. Proc. Ann. Conf. Southeastern Assoc. Game Fish Comm. 27:347-55.

³ Modde, T. 1980. State stocking policies for small warmwater impoundments. Fisheries 5 (5):13-17.

⁴ McGinty, A. S. 1983. Population dynamics of peacock bass, *Cichla ocellaris*, and *Tilapia nilotica* in fertilized ponds. In Proc. Internat. Symp. on Tilapia in Aquacult. pp. 86-94. L. Fishelson and Z. Yaron (compilers). Tel Aviv Univ. Press, Tel Aviv, Israel.

⁵ McGinty, A. S. 1984. The effects of predation by tucunaré *Cichla ocellaris* on *Tilapia nilotica* in ponds. J. Agric. Univ. P. R. 68(1):101-05

catfish averaging 11 cm total length and about 10 g each were stocked at a rate of 250/ha. Supplemental rations were not fed to the fish in the reservoir pond.

On December 3, 1982, 29 channel catfish were removed and their weight and total length determined. After 304 days, the channel catfish averaged 145 g/fish (SE = 11 g) and 26.1 cm total length (SE = 0.5 cm). The channel catfish's poor growth was attributed to excessive competition with tilapia for food. These results suggest channel catfish are not suitable for stocking in combination with tilapia and predator species in extensively managed ponds.

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