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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Culture of Mixed-Sex Nile Tilapia with Predatory Snakehead

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Abstract: An experiment was conducted in eighteen 200-m^2 fertilized earthen ponds at the Asian Institute of Technology, Thailand, during March-October 2000. This experiment was designed to assess the efficiency of snakehead (*Channa striata*) in controlling recruitment of mixed-sex Nile tilapia (*Oreochromis niloticus*) in ponds and to assess growth and production characteristics of Nile tilapia in monoculture and polyculture with snakehead. There were six treatments: (A) monoculture of sex-reversed all-male tilapia; (B) monoculture of mixed-sex tilapia; (C) polyculture of snakehead and mixed-sex tilapia at 1:80 ratio; (D) polyculture of snakehead and mixed-sex tilapia at 1:40 ratio; (E) polyculture of snakehead and mixed-sex tilapia 1:20 ratio; (F) polyculture of snakehead and mixed-sex tilapia at 1:10 ratio. Both generic types of Nile tilapia were stocked at 2 fish m^{-2} at sizes of 10.5-11.6 g and 7.2-8.1 g, respectively.

Results show that snakehead were able to completely control Nile tilapia recruitment at all tested predator: stocked-prey ratios and the best predator: stocked-prey ratio was 1:80. The addition of snakehead into Nile tilapia ponds did not result in significantly greater tilapia growth, but significantly lowered total net and gross yields of adult plus recruited tilapia. Snakehead growth was density-dependent, decreasing significantly with increasing stocking densities. While snakehead biomass gain was not significantly different at stocking density from 0.025 to 0.1 fish m^{-2},the gain was significantly lower at stocking density of 0.2 fish m^{-2}. The present experiment demonstrates that snakehead were able to control Nile tilapia

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recruitment completely and provide an alternative technique for Nile tilapia culture.

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