

ABSTRACT

Reproductive Performance of Jamaican Red Hybrid Tilapia Reared at Different Salinities.

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The effects of salinity on the reproductive performance (spawning cycle, egg size, egg weight, eggs produced, number of spawns, fecundity, spawning frequency, hatching success and survival rates) of the Jamaican Red Hybrid Tilapia was determined from a series of experiments.

All facets of spawning activities were observed in fresh- and seawater. These included breeding characteristics, schooling, territorial establishment, courtship, spawning and parental care.

In the initial experiment reproductive performance in freshwater and in seawater was observed for one year. Broodfish (>3 years) of weight 122 - 250 g and 15 - 20 cm were allowed to breed in 320 l rectangular fiberglass tanks each with three females and one male. The Jamaican Red Hybrid Tilapia breeds all year round, but the intensity increases during May to September, which relates to an increase in temperature ($Pr < 0.05$).

Reproductive performance in freshwater was significantly higher ($Pr < 0.05$) than in seawater.

In the second experiment, individual females were placed with individual males for 90 days in 130 litre aquaria. Four different salinities were chosen, 0, 17, 26 and 35 ppt., and the reproductive performance was compared. Broodfish (1 - 2 years) of weight 60 - 175 g were used in these experiment. Reproductive performance (egg volume, mean number of eggs produced, spawns, fecundity and spawning frequency) did not differ significantly ($Pr > 0.05$) among salinities. Hatching success and survival rates decreased with increasing salinity ($Pr < 0.05$).

Another experiment was carried out to look at seed production, when natural mouthbrooding was allowed. Freshwater bred, seawater acclimated and seawater bred broodstock were used. Broodfish (1 - 2 years) ranging from 60 - 190 g, in weight were stocked in rectangular outdoor concrete tanks at a density of 4 fish/m² and a male to female ratio of 3:1. Results showed no significant difference ($Pr > 0.05$) in fecundity and mean number of seed produced.

The Jamaican Red Hybrid fry were observed to display high survival rates when acclimated from 0 ppt. to 35

ppt. over 72 hours. On direct transfer to 35 ppt., 100% mortality occurred, however, direct transfer to 17 ppt. can be achieved.

The Jamaican Red Hybrid Tilapia is a good candidate for seawater culture due to its high salinity tolerance and its' ability to reproduce in seawater.