

Southeast Asian Fisheries Development Center

Aquaculture Department

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Freshwater red tilapia grow well in sea water

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FRESHWATER RED TILAPIA GROW WELL IN SEA WATER

Red tilapia or cherry snapper is a freshwater tilapia hybrid but can be readily acclimated to and cultured in sea water in tanks. With a biodrum and a water-recirculating system to maintain water quality in the culture tank, the fish can attain an average weight of 437 g within 8 months from an initial weight of 0.7 g. The system can support a biomass density of 49 kg per cubic meter. These findings were obtained in a joint study by the Primary Production Department and Flowell Farm Pte Ltd, a commercial fishfarming company, at the Marine Aquaculture Section in Changi, Singapore.

Red tilapia is a hybrid obtained from crossing a mutant red-orange strain of Oreochromis mossambicus female with a normal colored tilapia male. Unlike the normal colored female parent, which is grayish, red tilapia is widely accepted by consumers.

Taiwan is reported to be one of the major producers of red tilapia in fresh water, with an annual production of 2,500 metric tons. There have been some studies on culturing red tilapia in sea water, but such operations have yet to be commercialized. In Singapore, the study showed that the freshwater red tilapia fry survived the acclimation well with a survival rate of 86.6% in the treatment group. However, at the end of day 58, the fry suffered a 44.2% mortality rate. This was due to the weaker fry being drawn in and crushed by the rotating drum after removal of the protective fine-meshed net-cage that keep them away from the drum on day 15.

During the early grow-out period from day 59 to day 179, the survival rate of the treatment group was 83.9%. The survival rate of the fish improved further to 90.2% during the final grow-out period from day 180 to 239 indicating that the larger fish had well adapted to the rotational movement of the biodrum.

During the nursery period, the average growth rate of the individual fish in the treatment group was 0.65 g per day. The average growth rate increased from 1.66 g per day during the early grow-out period to 2.89 g per day during the final grow-out period. An average body weight of 437.46 ± 92.2 g and a biomass density of 49.35 kg per cubic meter were achieved. The overall feed conversion ratio for the group was 2.46, i.e., 2.46 kg feed were required to produce 1 kg body weight.

The study was conducted in two indoor fiberglass tanks measuring 4 meters in diameter with water capacity of 8 cubic meters. One tank was installed with a biodrum and the other without such an installation. The biodrum and the recirculating system helped to maintain the oxygen and ammonia levels within the tolerable range for the fish.

Source: PRIMARY PRODUCTION BULLETIN # 284 a publication of the Primary Production Department, Maxwell Road, Singapore, March 1988.