

Conditioning of broodstock of tiger grouper, *Epinephelus fuscoguttatus*, in a recirculating aquaculture system

Abstract

Closing the cycle of commercial species of fish in a recirculating aquaculture system is gaining importance for a number of practical advantages. Founder broodstock originating from the wild population is conditioned to live in hatchery tanks under suitable environmental and feeding conditions and is induced to breed. The juveniles are grown to maturity and facilitated to spawn in captivity to close the life cycle in the hatchery. This experiment was carried out on tiger grouper (*Epinephelus fuscoguttatus*). After preliminary observations, it was possible to identify appropriate environmental conditions in terms of water quality parameters, volume of broodstock tanks and ration. Growth was nearly isometric (growth exponent = 2.9185) and the condition factor = 1.86. This reflected good management conditions. Cues that trigger sex reversal in this protogynous fish in the hatchery were different from those that operate in nature. It appears that the differentiation of some individuals of a cohort into male sex is linked to socio-demographic cues as well as internal condition of the fish because it related to age and physiological condition. This view was reinforced by a lack of response in young fish to similar cues. The information generated through this study defines what is required for optimum conditioning of tiger grouper broodstock and explains the cues involved in sex differentiation.