

Sexual maturation and gonad development in tiger grouper (*Epinephelus fuscoguttatus*) x giant grouper (*E. lanceolatus*) hybrid

Abstract

The objective of this study is to determine the possibility of sexual maturation of tiger grouper x giant grouper (TGGG) hybrid. Specimens of TGGG were reared in the hatchery for six years in 150-tonne tanks equipped with a water recirculation system. Observations on maturation were conducted. TGGG (49 specimens) were measured for their total length, standard length, head length, body height, body width, body circumference and body weight, which were 73.97 ± 5.69 cm; 62.09 ± 5.10 cm; 22.87 ± 2.06 cm; 22.84 ± 2.42 cm; 13.98 ± 1.74 cm; 58.94 ± 6.18 cm; 9.88 ± 2.46 kg, respectively. Cannulation method could not be done for 80% of the population for TGGG hybrid grouper. The condition factor of TGGG averaged 2.40 ± 0.21 (n=49). Length-weight relationship of TGGG showed a strong correlation ($P > 0.05$) and the equation obtained were: $\log W = -4.3317 + 2.8453 \log L$. The value of regression coefficient (b) equals to 2.8453 and value of correlation coefficient (r) equals to 0.93. In three specimens two pairs of ovaries and one pair of testis were noticed. The values of gonado-somatic index (GSI) were 0.74, 4.05 (female fish) and 1.38 (male fish). It was determined using histology method that the gonad stage was developing stage (Ovary, GSI=0.74) and mature stage (Ovary, GSI=4.05; Testis, GSI=1.38). The average of oocyte cells in each ovary was 83.0 ± 33.0 μm (n=26; GSI = 0.74) and 238.5 ± 95.4 μm (n=11; GSI = 4.05). The results suggested that the hybrid gonads have undergone a course of sexual maturation that has never been reported in the past.