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Reproductive biology of orange-spotted grouper, *Epinephelus coloides* of the Arabian Gulf at Saudi Arabia

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Abstract

The orange-spotted grouper, *Epinephelus coloides* (Hamoor) is one of the prime fish species in Saudi Arabia. So, it was selected to study their reproductive biology in Saudi territorial waters of Arabian Gulf. The gonadal maturation, sex ratio, spawning season, size at first sexual maturity, hermaphrodites and fecundity were studied. Fish mature first as females and some of them become males latter. The immature fishes that belong to age groups 1-3 years constitute about 53%, while the mature fishes that belong to age groups 4-10 constitute about 47% in the population. Sex ratio varied with fish length, where the males were gradually appared and dominated in the oldest fishes. The overall mean sex ratio was 1:4 for males to females and moreover about 6% of the catch individuals were hermaphrodites. The estimated length at which 50% of fish in the population reached sexual maturity (Lm50) was 60% cm and 48 cm for males and females, respectively. The corresponded age at first sexual maturity (tm50) was 4.90 and 3.25 years for males and females, respectively. The smallest size of fully mature was 76 cm for males and 64 cm for females. The GSI reached its maximum values during April, which is significantly higher ($P<0.05$) for females than males, and the spawning season extends from March to May. The absolute fecundity ranged from 957, 270 to 3, 287, 515 eggs for the fish ranging from 40 to 80 cm total length, respectively. It can be concluded that it must be allowed the fishes to grow to sexual maturity (Lm50) before allowing substantial harvest to protect the stock and to improve the spawning stock biomass of Hamoor in the Arabian Gulf at the long run.

Keywords: Hamoor, *Epinephelus coloides*, Arabian Gulf fisheries, Saudi Arabia