In this study, gonadal changes of dusky grouper *Epinephelus guaza* L.1758 were investigated by histo-anatomically according to sexual maturity in Antalya Bay of Eastern Mediterranean in Turkey. The specimens (*n* = 104) were captured monthly by spear-fishing from their natural sites. The gonads of them were dissected as soon as and fixed in 10% neutral buffered formaldehyde and Bouin’s solution. They were embedded in paraffin blocks after several histo-chemical processes. Sectioned tissue samples at 5μm were stained by Haematoxylin-eosin and Mallory trichrome techniques. Mainly four different stages which were immature stage, mature female stages (from F1 to F6), transitional stages (from T1 to T3), and mature male stages (from M1 to M3) were observed according to gonadal development. However GSI (*Gonadosomatik indeks*) is the most common used to quantify spawning time in fish; the RGI (Relative gonadal index) was found more appropriate than GSI for the fish. Dusky groupers spawned in June and September in Antalya Bay.

**Keywords:**

Dusky grouper, *Epinephelus guaza*, Reproductive pattern, Protogynous hermaphroditism, Sex reversal.