Biology And Population Dynamics Of The Bluefish, Pomatomus Saltatrix

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Bluefish, Pomatomus saltatrix, is distributed worldwide in tropical, subtropical and temperate waters and is represented by many populations with different growth rate. The species supports an important commercial fishery in Oman that reached 6344 tons in 2011. A study of the biology and stock characteristics of the bluefish was carried out from the Arabian Sea off Oman during 2010-2012. The size of 1040 studied fish from the catches of artisanal fishermen ranged from 13.7 cm to 87.5 cm FL (mean 55.9 cm), weight was 30.9-7825 g (mean 2724 g). The parameters a and b in fork length - total weight relationship for pooled sexes were 0.0275 and 2.8228, and females were found slightly heavier than males of the same length. The bluefish is an active predator and remains of the Indian oil sardine, mullets, other bony fishes, juveniles of cuttlefish and squids were found in the stomachs. The monthly gonado-somatic index (GSI) and frequency of different stages of gonads of males and females were studied to detect the spawning season. The population of P. saltatrix spawned between March and August with peak in June-July. During the spawning months, feeding of majority of fish was less active and condition factor (CF), hepatosomatic index (HSI) and stomach-somatic index (SSI) have lesser values than during September-February. Males were slightly dominant over females (M:F=1:0.94). The ages of 313 bluefish determined using sectioned otoliths ranged from 0 to 8 years. The maximum age was found in fish from 78.4 to 82.8 cm FL. No significant differences were detected in growth between sexes; von Bertalanffy growth parameters were Linf = 90.8 cm, K = 0.251 1/y and to = -0.217. The length at first maturity for males and females was 30.0 cm of FL and the age at first maturity was 1.3 years. The natural mortality (M), total mortality (Z), and fishing mortality (F) coefficients were 0.59 1/y, 0.86 1/y and 0.27 1/y, respectively. The average total stock in Dhofar for the pooled yield data of two years was calculated as 1138 t and the MSY stood at 439 t. The exploitation rate (E) was 0.31 and the annual harvest rate (H) was calculated as 18%. The yield-per-recruit analysis (YPR) indicated the MSY value at fishing mortality (F) of 0.39 1/y, while the current level (0.27 1/y) was significantly lower. The exploitation pattern of the bluefish off Dhofar coast in Oman indicates scope for further increase of effort in the fishery. Keywords: Pomatomus saltatrics, size, age, food, spawning, growth, mortality, MSY, Arabian Sea.