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Analyses of biometric growth parameters and feeding habits of *Mugil cephalus* (Flathead mullet): One of the economically important fish species collected from Negombo Lagoon

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Flathead mullet (*Mugil cephalus*) is found to be a potential candidate species in brackish water aquaculture due to its euryhaline nature, and it has ready markets for seeds as well as processed products. However, the lack of data on adult flathead mullets in the natural environment in Sri Lankan waters is the major constraint to study the biology of the species and management practices for fish resources. The present study was conducted to analyze the diet composition, length-weight relationship, and condition factor of *M. cephalus* belonging to the family Mugilidae collected from the Negombo lagoon, Sri Lanka. In fisheries science, the important condition factors are the growth, health state and feeding intensity. The sampling was done from August 2022 to March 2023. A total of 100 specimens were collected from the catches of artisanal fisheries from Negombo lagoon area. The total length and weight of fish were measured and varied in a range of 16.9 cm - 32.0 cm and 55.50 g - 291.70 g respectively. Length frequency distribution showed that the total length class 23 cm - 24 cm had the highest frequency of 100 samples. The FishBase reports length at first maturity as 30.0 cm and the percentage below 30 cm was observed as 97%. Results obtained showed a negative allometric growth pattern for this fish species ($b < 3$, t-test, $p < 0.05$) with a significant linear relationship given by the equation; $W = 0.0266TL^{2.690}$ ($\log W = -1.575 + 2.690 \log TL$ ($R^2 = 0.951$, $n=100$)). Fulton's condition factor (K) of males and females of *M. cephalus* was 1.0501 ± 0.0359 , and 1.0048 ± 0.0123 respectively. Mean Fulton's condition factor for immature mullets was lower than (0.9960 ± 0.0724) that of the mature ones (1.0373 ± 0.0735). Relative Gut Length (RGL) and Gastro Somatic Index (Ga.SI) were 1.52 – 3.18 and 2.012 – 3.874 respectively. The recorded mean RGL (2.442 ± 0.146), confirmed that *M. cephalus* is omnivore species. The stomach content was analyzed using the frequency of occurrence method showed that algae (30.86%), sand particles (25.71%), and detritus (23.43%) as main food items. The food of animal origin consisted of annelids, insect parts and crustaceans. Most of the fish were one-fourth filled (1/4) at the time of capture. The immature individuals recorded from the Negombo lagoon area were 49 %. The present study reported the presence of synthetic debris such as nylon threads in the stomachs of flathead mullets revealing that the area is polluted. Therefore, more research into the effect of synthetic debris on the lagoon area is recommended. Continuous monitoring of fish landings is also recommended as immature individuals recorded were significant in the fish catch.

Keywords: Frequency of occurrence, Mugilidae, Omnivore, Synthetic debris