

Estimating the best growth model of kutum (*Rutilus kutum*) in Mazandaran fishing grounds (the south Caspian Sea)

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Abstract

This study was carried out to estimate the best growth model of kutum (*Rutilus kutum*) caught in fishing grounds of Mazandaran (the south Caspian Sea) from October 2019 until March 2021. In this study, 426 kutum including 178 males and 248 females were bought from Mazandaran fishing grounds and were subjected to biometrics and gender determination. Mean length of male and female kutum were 35.28 ± 0.44 cm and 38.84 ± 0.48 cm, respectively. Length-frequency distribution of both sexes had significant differences ($P < 0.05$). Based on the analysis of growth curves through the MMI theoretical information approach, the best model to describe the growth of male and female kutums was the 3-parameter Von Bertalanffy growth model and the Gompertz growth model, respectively. According to the growth models tested in this study, the values of L_{∞} , K , t_0 , and birth size for male kutum were 53.2 cm, 0.251 y^{-1} , -0.57 and 3.93 cm, respectively and were 58.71 cm, 0.221 y^{-1} , -0.617 and 4.12 cm for female kutum, respectively. According to likelihood method, growth curves of male and females were significantly different ($P < 0.05$). Using age-catch curve, total mortality coefficients were 1.015 and 0.673 for males and females kutum, respectively. The results of this study showed that for a better understanding and selection of the best model to describe the growth of commercial and valuable species of kutum, it is recommended to use a MMI approach and test different models.

Keywords: MMI, Gompertz model, Logistic model, Von Bertalanffy model, Mortality.