Population dynamics of Caspian sand smelt (*Atherina caspia*) in Gorgan Bay-southeastern Caspian Sea

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Abstract

This study was carried out to investigate population dynamic of Caspian sand smelt (*A. caspia*) based on a monthly sampling in northern coast of Gorgan bay, between the estuary and canal of Khozeini, during its migration to coastal areas from March to September 2017. A total of 800 samples were collected using beach siene. Length frequency analysis revealed that there is significant difference between abundance of males and females, so that there was no male in some elder length groups. Length-weight relationship was $W=0.007L^{2.906}$ for males and $W= 0.008L^{2.846}$ for females, indicating negative allometric growth for both sexes. After fitting the regression using least square method, the relationship was $W=0.006L^{3.00}2$and $W= 0.005L^{3.071}$ for males and females respectively. Electronic length frequency analysis (ELEFAN) using response surface analysis resulted Von Bertalanfy growth equation as $L_t = 13.75(1 - EXP(-0.080(t + 0.36)$ for males and $L_t = 18(1 - EXP(-0.33(t + 0.63)$ for females. Growth curves showed that length and weight increments occur up to age of 3^+. 3 cohorts were observed for both sexes of the studied population. Natural mortality using Pauly's experimental equation calculated as 1.640 for males and 1.274 for females.

Keywords: *A. capsia*, growth, mortality, Gorgan bay.