

عنوان مقاله:

Estimation of Growth and Mortality Parameters of Croaker *Atrubucca alcocki* in Pakistani Waters

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نویسندگان:

.k. H. Memon - *College of Fisheries, Ocean University of China, Qingdao ۲۶۶۰۰۳, People's Republic of China*

.Q. Liu - *Department of Marine Fisheries, Fish Harbor West Wharf Karachi, ۷۴۰۰۰, Pakistan*

.M. A. Kalhoro - *College of Fisheries, Ocean University of China, Qingdao ۲۶۶۰۰۳, People's Republic of China*

.K. Nazir - *College of Fisheries, Ocean University of China, Qingdao ۲۶۶۰۰۳, People's Republic of China*

.B. Waryani - *Department of Zoology, University of Sindh, Jamshoro, Pakistan*

.M. Chang - *Department of Zoology, University of Sindh, Jamshoro, Pakistan*

.A. Nabi - *Department of Microbiology, University of Sindh Jamshoro, Sindh, Pakistan*

خلاصه مقاله:

Five demersal trawl surveys were conducted in the Pakistani waters in October, November ۲۰۰۹ and August, October, November ۲۰۱۰. A total of ۸۱۹ length-weight and ۷,۲۴۰ length-frequency data of *Atrubucca alcocki* were collected, the length ranged from ۱۰ cm to ۴۵ cm with the dominant length group from ۱۹ to ۲۹ cm. The total weight ranged from ۱۴ to ۹۲۸ g. The length-weight relationship can be expressed as $W = ۰.۰۱۲ * L^{۲.۹۲۵}$ ($R^2 = ۰.۹۷۲$). Using the ELEFAN program in FiSAT computer package, the calculated von Bertalanffy growth function parameters were $L_{\infty} = ۴۷.۲۵$ cm, $K = ۰.۱۸$ yr⁻¹. Total mortality (Z) was computed using the length-converted catch curve analysis at $Z = ۱.۰۷$ yr⁻¹. Natural mortality was computed as $M = ۰.۴۹۴$ yr⁻¹ at an annual average sea surface temperature of ۲۶°C, hence, the fishing mortality was computed as $F = Z - M = ۰.۵۷۶$ yr⁻¹. The Exploitation ratios (E) were computed as $E_{max} = ۰.۴۲۱$, $E_{10} = ۰.۳۵۵$, $E_{50} = ۰.۲۷۸$. Yield per recruit analysis revealed that when t_c was assumed to be ۲, F_{max} was calculated at ۰.۷۵ and $F_{0.1}$ at ۰.۶. When t_c was assumed to be ۱, F_{max} was calculated at ۰.۵۵ and $F_{1.0}$ at ۰.۴۵. Current age at first capture was about ۱ year and $F_{current}$ was ۰.۵۷۶, therefore, $F_{current}$ was larger than $F_{0.1}$ and F_{max} . When biological reference point was F_{opt} equal to M (۰.۴۹۴), current fishing mortality rate of ۰.۵۷۶ was larger than the target biological reference point

کلمات کلیدی:

Biological reference points, Bertalanffy growth function, Length-converted catch curve, Natural mortality

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