

Growth Rate, Condition and Mortality of Chub (*Leuciscus cephalus*) from the Middle Stream of the Iskar River (Bulgaria) and a Comparison with Populations from Another Water Bodies

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Abstract: The population status of chub from the middle stream of the Iskar River was investigated by using some biological factors as growth rate, condition and mortality rate. The maximum age, length and body mass of chub were 7 years, 388 mm and 1150 g, respectively. The average age was 2.11 years. The second age group was dominant in the population (64.62%).

The linear and body mass growth rate were described by the Von Bertalanffy's equations: $L_t = 50.48 [1 - e^{-0.1827(t-0.1536)}]$, $r = 0.998$; $W_t = 2327.59 [1 - e^{-0.1879(t-0.1596)}]^{2.94}$, $r = 0.999$, respectively. The coefficient of Hohendorf for the growth potential showed low values (0.77 and 0.49, respectively). The population of chub appeared with a high growth rate. The linear and body mass growth parameters (ω) were: $\omega_L = 9.22$ and $\omega_w = 437.35$, respectively. The indexes of linear and body mass growth performance (ϕ') were: $\phi'_L = 2.668$ and $\phi'_w = 1.52$, respectively.

The condition coefficient of chub (k) from the Iskar River was higher than that for other populations from different water bodies. Also, when the populations from different water bodies were compared by the body mass at the same length, the condition coefficient of chub from the Iskar River was highest in the first two classes (W_{10} , W_{20}). The annual mortality rate for the whole population was high (66.7%), while the survival rate was two times less. The annual mortality rates for each year in the period 2001-2003 were 60.03%, 77.71% and 68.08%, respectively.

Key words: chub, growth rate, condition, mortality, Iskar River, Bulgaria.