

ABSTRACT

Amblygaster Sirm constitutes over 40% of the small pelagic fish production in the Western Coastal waters of Sri Lanka. Several studies have been carried out to estimate the population parameters of A.Sirm during the period of 1980 – 1987. Parameter uncertainties of the population parameter estimations of A.Sirm during 1986/87 were considered for this study. The different magnitudes of perturbations in natural mortality, asymptotic weight and growth coefficient of their earlier estimated values was considered. For each combination of the values of above parameters, maximum yield per recruit, optimal age at first capture and optimal fishing mortality were obtained by optimizing the Beverton and Holt yield per recruit function. For $\pm 10\%$ variation from the initial values of these parameters, maximum yield per recruit has been varied on the range of 20.9g. – 40.0g. For the same variation of the above parameters, optimal age at first capture has been varied on the range of 1.12 – 1.39 years. This indicates the effect of the parameter uncertainties for the optimal fishing strategies.

Appropriate models were built to describe the relationships between uncertain parameters and optimal parameters of the Beverton and Holt yield per recruit model. These models could be used as the prediction models for the determination of optimal fishing strategies. Similar types of prediction models could be derived for other species.