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Population Dynamics of Trenched Sardine *Amblygaster sirm* (Clupeidae) in the Western Coastal Waters of Sri Lanka

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Abstract

Length-frequency data for trenched sardine *Amblygaster sirm* (Clupeidae) from western coastal waters of Sri Lanka, obtained over a period of three years, were analyzed using the Compleat ELEFAN software. The mean asymptotic length and growth coefficient (K) were estimated to be 25.23 cm and 1.25 year^{-1}, respectively. The instantaneous total mortality coefficient, natural mortality coefficient and fishing mortality coefficient were estimated to be 2.75 year^{-1}, 1.30 year^{-1} and 1.45 year^{-1}, respectively. The exploitation rate (E=F/Z) was over 0.5 indicating that the stock may be overexploited. Annual recruitment occurred as two unequal pulses separated by a 5-7 month interval. The mean size at entry into the fishery during the study period was 16.17 cm.

Introduction

The trenched sardine *Amblygaster sirm* is a pelagic clupeid species dominant in the fish catches of the western coast of Sri Lanka (Anon. 1984). Due to its importance in coastal fisheries, some work has recently been carried out on various aspects of its biology and fishery in Sri Lanka. A preliminary analysis of length frequency data was done in 1980-81 and 1983-84 to estimate the values of the growth paramters L_∞ and K of the von Bertalanffy growth equation (Siddeek et al. 1985; Karunasinghe, unpubl. data). Dayaratne (1984) estimated the same parameters using primary structures in the otoliths. Selectivity of *A. sirm* in the gill nets has also been studied recently (Dayaratne 1988; Karunasinghe and Wijeyaratne 1991).