

STUDIES ON THE EXPLOITATION OF TRENCHED SARDINE *AMBLYGASTER SIRM* (WALBAUM) OFF THE NEGOMBO COAST

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Abstract: *Amblygaster sirm* (Family: Clupeidae) constitutes > 40% of the small pelagic fish production in the western coastal waters of Sri Lanka. Using the catch and effort statistics from 1980 to 1981 and from 1983 to 1988, the maximum sustainable yield and optimum fishing effort for this species were calculated to be 3512.39 mt/year and 337 boats/day respectively. To optimally exploit fishery, the size at first capture of *A. sirm* should be maintained at 16.00 cm total length and gill nets with a stretched mesh size of over 2.5 cm have to be used. At present, *A. sirm* appears to be heavily over-exploited.

Key words: *Amblygaster sirm*, maximum sustainable yield.

INTRODUCTION

Amblygaster sirm (Family: Clupeidae) dominates fish catches in the west coast of Sri Lanka throughout the year.¹ It is frequently found in the catches of gill nets and purse seines and occasionally in beach seines operated at a depth range of 5-70 m.² Recent statistics indicate that this species constitutes > 40% of the small pelagic fish production in the west coast of Sri Lanka.³ In the small meshed gill nets operated in this region, *A. sirm* is observed to be the most abundant species.⁴ These gill nets, with mesh sizes ranging from 2.3 cm to 3.8 cm stretched mesh, are mostly operated by 5-7 cm fibre reinforced plastic boats powered by 10-25 hp out-board engines.⁵ In the recent past, some studies on the status of the gill net fishery of *A. sirm* in Sri Lanka have been carried out. These include investigations on craft and gear, catch and effort statistics,^{4,6} growth parameters,⁷ selectivity patterns,^{5,7,8} length frequency distributions, mortalities^{1,5,6,7} and yield per recruit isopleths.¹

However information on the maximum sustainable yield, optimum fishing effort and optimum size at first capture of this species in Sri Lanka are not available. This paper deals with (a) the effects of changing the size at first capture, (b) maximum sustainable yield and (c) optimum fishing effort, for *A. sirm* in the small meshed gill net fishery in the west coast of Sri Lanka.

METHODS AND MATERIALS

Sampling of the catch was carried out once a week at the fish landing site at Negombo for a period of four years from September 1984 to August 1988 (Fig. 1). On each sampling day, total number of boats operating gill nets for *A. sirm* was recorded and 5% of them were randomly selected for the collection of detailed statistics on catch and effort. The catch and effort statistics were used in

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