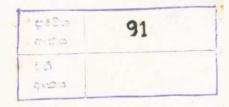
FISHERY AND SOME ASPECTS OF BIOLOGY OF
Penaeus indicus (H. Milne Edwards)
WITH NOTES ON CO-OCCURRING PENAEID SPECIES
IN THE WEST COAST OF SRI LANKA

BY

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ABSTRACT කැලණිය විශ්වවීදහලක් [මූ ලිංකාමේ)

The fishery and some aspects of biology of <u>Penaeus indicus</u> in the west cost of Sri Lanka were studies in Negombo and Chilaw areas from January 1979 to January 1981. The catch, effort, species composition, recruitment, mortality, survival rates, morphometrics, maturity stages, growth, fecundity, spawning seasons and by-catch were investigated for commercially important Penaeid prawns with <u>Penaeus indicus</u> being selected for detailed study.

In this study, for convenience, the prawns were categorised under two groups, namely small prawns consisting of Metapenaeus dobsoni, Parapenaeopsis stylifera, Metapenaeus ensis, Parapenaeopsis cornuta, and Paleomonid sp. and large prawns consisting of Penaeus indicus, Penaeus monodon, Penaeus semisulcatus, and Penaeus merguiensis. Of the small prawns M. dobsoni and P. stylifera are the most dominant in the fishery, while P. indicus is the most abundant of the commercially importnat large penaeid prawns. In Negombo the high catches were mainly of small prawns while in Chilaw large prawns of commercial importance constitute considerably in the main catch. P. stylifera wer caught throughout the year while P. merguiensis showed erratic fluctuations in catches during certain months. The annual prawn production was estimated to be 158,296, kg in Negombo area and 133,053 kg in Chilaw area. The annual maximum sustainable yields estimated for these areas were 177,956 kg and 233,183 kg respectively.

the total mortality, growth rate, survival rate, longevity and L (maximum length) for P. indicus and these show that they are respectively, 4.41 yearly; 1.8 cm. yearly in carapace length; .02 yearly; 1-2 years and 5.652 cm. carapace length. Using Pauly's equation the natural mortality, fisheing mortality and the exploitation rate for P. indicus were calculated and they were found to be 3.041 yr , 1.37 yr and 0.31 respectively.

Six maturity stages of the ovary of <u>P. indicus</u> were recognised. Its fecundity ranged from 50,000 to 700,000.

The length increment per moult of <u>P. indicus</u> was found to be 2.71 mm. in total length. The sex ratio for these species approximated to 1:1. Spawning of <u>P. indicus</u> takes place from August to February and reruitment occurs during April - May and September - October.

Shrimp by-catch ratio was found to be approximately 2:1 inNegombo and 1:1 in Chilaw. The by-catch consisted of 40 species of bony fishes belonging to 13 families. The annual shrimp by-catch was estimated to be 69,076 kg. in Negombo area and 156,219 kg. in Chilaw area.

The results are been discussed in relation to the existing fishery in the respective areas of study.