

TABLE OF CONTENTS

	page
TABLE OF CONTENTS	i
LIST OF TABLES	vi
LIST OF FIGURES	ix
ACKNOWLEDGEMENTS	xvii
ABSTRACT	xviii
1. INTRODUCTION	1
1.1 The mud crab, <u>Scylla serrata</u> (Forskal).	7
1.2 The status of mud crab fishery in Sri Lanka.	10
1.3 Mud crab research - International experience.	11
1.4 Objectives of the present study.	23
2. MATERIAL AND METHODS	25
2.1 Measurement of hydrobiological parameters in the Negombo Lagoon.	25
2.2 Taxonomic features of the mud crab.	26
2.3 Food and feeding habits.	26

2.4 Growth parameters of the mud crab, <u>Scylla serrata</u> in the Negombo Lagoon.	28
2.4.1 Analysis of length data.	30
2.4.2 Total mortality (Z).	32
2.4.3 Natural Mortality (M).	35
2.4.4 Fishing Mortality (F).	36
2.4.5 Exploitation Rate (E).	36
2.4.6 Recruitment pattern.	36
2.4.7 Yield per Recruit (Y'/R).	36
2.4.8 Length weight relationship.	37
2.5 Reproductive biology.	37
2.5.1 Fecundity.	40
2.5.2 The ova diameter analysis.	40
2.6 Larval and Juvenile population.	41
2.6.1 Observation on the Larval population.	41
2.6.2 Observation on the Juvenile population.	42
2.7 Fishery and economic aspects of the mud crab.	43
2.7.1 Description of fishing gears.	44

2.7.2 Crab Landing centers in the Negombo Lagoon.	49
2.7.3 Catch Statistics on the adult population.	50
3. RESULTS	54
3.1 Hydrobiological parameters in the Negombo Lagoon.	54
3.1.1 Salinity.	54
3.1.2 Water temperature.	57
3.1.3 Turbidity.	57
3.1.4 pH.	62
3.1.5 Rainfall.	62
3.2 Taxonomic features of the mud crab.	67
3.3 Food and Feeding habits of mud crab <u>Scylla serrata</u> in the Negombo lagoon.	71
3.3.1 Percentage occurrence of different food items.	71
3.3.2 Seasonal variation of the food items.	73
3.3.3 Feeding time.	75
3.4 Growth parameters of the mud crab <u>Scylla serrata</u> in the Negombo Lagoon.	78

3.4.1 Growth parameter estimates.	81
3.4.2 Mortalities, Exploitation rates and length at first capture.	92
3.4.3 Recruitment pattern.	92
3.4.4 Yield/Recruit (Y/R) and Biomass/Recruitment (B/R).	100
3.4.5 Length - Weight Relationship.	108
3.5 Reproductive biology of <u>Scylla</u> <u>serrata</u> in the Negombo Lagoon.	108
3.5.1 Size at first maturity.	108
3.5.2 Fecundity.	111
3.5.3 Seasonal variations of the maturity stages in female crabs.	114
3.5.4 Ova diameter frequency.	119
3.5.5 Sex ratio.	123
3.6 Larval and juvenile population.	125
3.6.1 Larval population.	125
3.6.2 Juvenile population.	125
3.7 Fishery and economic aspects of <u>Scylla serrata</u> .	132
3.7.1 Catch per unit effort.	141

4. DISCUSSION	147
CONCLUSION	170
5. REFERENCES	173