

# CONTENTS

	Page
• Abstract	iv
• Contents	v
• List of tables	vii
• List of figures	viii
• Acknowledgments	ix
• Abbreviations	x
• Glossary of terms	xi
<b>Chapter - 01</b>	
<b>Introduction</b>	<b>1</b>
1.1 Background of the study	1
1.2 Objectives	4
1.3 Significance	4
1.4 Limitations	5
1.5 Organization of the thesis	6
<b>Chapter - 02</b>	
<b>Materials and Methods</b>	<b>7</b>
2.1 Introduction	7
2.2 Fish stock assessment and models used in assessment.	7
2.3 Beverton and Holt classic dynamic pool model of yield per recruit.	13
2.4 Uncertainties in the input parameters of Beverton and Holt model and their effects on the determination of the optimal fishing strategies.	15
2.5 Methodology used for evaluation the effect of the parameter uncertainties on the Beverton and Holt yield per recruit model.	16

<b>Chapter - 03</b>	
<b>Results</b>	<b>20</b>
<b>Chapter - 04</b>	
<b>Conclusions and Discussion</b>	<b>27</b>
<b>References</b>	<b>31</b>
<b>Appendix</b>	<b>34</b>

## LIST OF TABLES

	Page
<b>TABLE 1.1.1</b> Estimated values for Asymptotic length ( $L_{\infty}$ ), Growth coefficient (K), Fishing mortality (F), Natural mortality (M) and other length parameters of Sardine <i>Amblygaster Sirm</i> in the Western Coastal water of Sri Lanka during the period of 1980-1987.	2
<b>TABLE 2.5.1</b> Estimated values of the parameters of the Beverton and Holt model during 1986/87.	18
<b>TABLE 2.5.2</b> Magnitudes of the perturbations in $M, W_{\infty}$ and K with their percentage Perturbations.	19
<b>TABLE 3.1</b> Values of the parameters of the regression model with their respective significance.	26

## LIST OF FIGURES

	Page
<b>FIGURE 2.1.1</b> General procedure of fish stock assessment	9
<b>FIGURE 3.1</b> Contour plot of maximum yield per recruit against $W_\infty$ and $K$ when $M=0.86$ .	23
<b>FIGURE 3.2</b> Contour plot of optimal $t_c$ against $W_\infty$ and $K$ when $M=0.86$ .	24