

CONTENTS

	Page
INTRODUCTION	1
General	1
The fisheries	3
The biology of the principal species	6
Otolith ring structure	8
Estimates of growth	10
Spawning season	11
Verification of daily periodicity ..	12
Applicability of the present results	14
Future work	18
Acknowledgements	21
References	22

I. SMALL-MESHED GILL NET FISHERY FOR SMALL PELAGIC FISH ON THE WEST COAST OF SRI LANKA.

Abstract

Introduction	1
Material and Methods	3

	Page
Collection of data	3
Analyses of data	4
Results and Discussion	10
Fishing craft and gear	10
Fishing area	13
Fishing depth	14
Variation in effort	15
Total catch	17
Variation in catch per unit effort	20
Species composition of the catches	28
Length frequency distribution of the <u>Sardinella</u> spp.	30
Selectivity of gill nets	36
Concluding remarks	39
Acknowledgements	41
References	42

II. INTRODUCTION, REVIEW AND METHODS. Pp: 1-30. IN AGEING
TROPICAL FISH BY GROWTH RINGS IN THE OTOLITHS.

Introduction	1
Review	
Primary increment deposition on otoliths	
Present knowledge	1
Methods - Review and recommendations	13
Introduction	13

	Page
Validation of ring counting as ageing method	14
Sampling procedures	17
Preservation of fish and otoliths	19
Extraction of otoliths	20
Choice of otoliths for study	20
Preparation of otoliths prior to counting	21
Counting growth increments	24
Interpretation of results	28
References	31

III. AGE AND GROWTH STUDIES OF FOUR SARDINELLA SPECIES FROM SRI LANKA:

Abstract

Introduction	1
Material and Methods	2
Material	2
Methods	
Otolith extraction and preparation	4
Otolith reading	5
Estimation of growth	6
Calculation of spawning season	7
Study on maturity stages	7
Verification of the ageing method	8

	Page
Results and Discussion	
Description of otolith	8
Counting and interpretation of rings	10
Growth pattern of <u>Sardinella</u> spp. as seen from the otolith microstructure ..	11
Consistency of the ring counts	13
Growth estimates	15
Spawning	30
Verification	39
Conclusions	43
References	45

IV. PRIMARY GROWTH RINGS IN OTOLITHS OF SOME SMALL PELAGIC FISHES (FAMILIES-CLUPEIDAE, DUSSUMIERIDAE, ENGRAULIDAE, CHANNIDAE AND SPHYRAENIDAE) FROM SRI LANKA:

Abstract

Introduction	1
Material and Methods	2
Results and Discussion	
Clupeiodes	4
Structure of otolith and pattern of ring deposition	4
Fish length /otolith radius relation ...	11

	Page
Length at age data	13
Estimated spawning season of <i>clupeoides</i>	21
Other species	23
<u>Chanos chanos</u>	23
Structure of otolith	24
Fish length/otolith radius relation ..	26
Estimates of growth	27
Spawning season	30
<u>Sphyraena jello</u>	31
Conclusions	33
Acknowledgements	34
References	35

V. A COMPARISON OF PRIMARY GROWTH RINGS IN OTOLITHS OF SPRATTUS SPRATTUS FROM NORWAY AND SARDINELLA SPP. FROM SRI-LANKA.

Abstract

Introduction	1
Material and Methods	3
Material	3
Methods	
Fish length/otolith radius relation..	5
Growth estimates	6
Calculation of spawning season	6

	Page
Results and Discussion	
Otolith structure of sprat and comparison with that of herring and <u>Sardinella</u>	8
Fish length versus otolith radius ...	15
Length at age data	20
Comparison of growth estimates of sprat with that of <u>Sardinella</u> spp. ..	20
Spawning season	26
Evidence for daily periodicity of the primary rings in sprat otolith	30
Conclusions	31
Acknowledgements	32
References	33