CONTENTS

Chapter I INTRODUCTION

1.1 Introduction 1
1.2 Estuaries as Coastal Water Bodies 3
1.3 Definition of Estuaries 4
1.4 Classification of Estuaries 5
1.5 Quantitative Methods of Classification 6
1.6 Contamination of Coastal Water Bodies 10
1.7 Water Pollution 11
1.8 Types of Water Pollution 12
1.9 Estuaries: Filters of Pollutants 17
1.10 The Cochin Estuary 18
1.11 Pollution Status of Muvattupuzha River 27
1.12 Pollution Status of Periyar River 29
1.13 Mathematical Models on the Estuarine Environment 35
1.14 Objectives of the Thesis 41
1.15 Scheme of the Thesis 42

Chapter II MATERIALS AND METHODS

2.1 Introduction 43
2.2 Theory and Approach to RIVMIX 44
2.3 Application of RIVMIX to Muvattupuzha and Periyar Stretches 49
2.4 Theory and Approach to WASP 54
2.5 Governing Equations 55
2.6 Field Studies 58
Chapter III  POLLUTION ROUTING IN MUVATTUPUZHA AND PERIYAR RIVERS APPLYING RIVMIX

3.1 Introduction 59
3.2 Application of RIVMIX to Muvattupuzha River 61
3.3 Survey Results from Muvattupuzha River 92
3.4 Survey Results from Periyar River 94
3.5 Model Results under Present Conditions of Altered Depth(s) 96

Chapter IV  POLLUTION ROUTING IN MUVATTUPUZHA AND PERIYAR RIVERS APPLYING WASP

4.1 Introduction 108
4.2 Study Site 108
4.3 Model Application 111

Chapter V  SUMMARY AND CONCLUSION

REFERENCES 128
APPENDIX