CONTENTS

MARINE TRAFFIC - THE ROLE OF GOVERNMENT by E.R. Hargreaves	1
DEVELOPMENT OF SHIPS' ROUTEING 1857-1977 by J.H. Beattie	9
THE PRACTICAL BACKGROUND: SETTING THE SCENE by J.E. Bury	19
CAN MATHEMATICS HELP THE MARINER? by S.H. Hollingdale	23
STATISTICS OF SHIP COLLISIONS by A.N. Cockcroft	35
MATHEMATICAL ASPECTS OF MARINE TRAFFIC CASUALTY STATISTICS by J.R. Moon and J. Higgins	43
MARINE TRAFFIC SURVEY METHODS: DATA COLLECTION AND PROCESSING by J. Kemp and J. Holmes	61
THE UNDERWATER ENVIRONMENT: CHARTING THE SEA BED by R.L. Cloet	73
THE JAPANESE APPROACH TO MARINE TRAFFIC ENGINEERING by Y. Iijima	85
DETERMINATION OF SHIP DOMAIN SIZE by E.M. Goodwin	103
THE MODELLING OF MARINE TRAFFIC FLOW AND POTENTIAL ENCOUNTERS by G.R.G. Lewison	129
ENCOUNTERS, NEAR MISSES AND COLLISIONS AT SEA by M.J. Barratt	161
AN ANALYSIS OF THE DANGERS OF SHIPS OVERTAKING by R.G. Curtis	175

xii CONTENTS

MATHEMATICAL MODELLING OF SHIP MANOEUVRING by A.D. Gill	193
COMPUTER PROGRAMS FOR COLLISION AVOIDANCE AND TRACK KEEPING by J. Kearon	229
THE USE OF NUMERICAL MODELS OF TIDE AND SURGE PROPAGATION AS AN AID TO NAVIGATION by D. Prandle	243
SHIPPING OPERATIONS IN THE SUEZ CANAL	251