

Q32611
232532

Lecture Notes on Coastal and Estuarine Studies

Managing Editors:

Richard T. Barber Christopher N.K. Mooers
Malcolm J. Bowman

14

Estuarine Cohesive Sediment Dynamics

Proceedings of a Workshop on Cohesive Sediment Dynamics
with Special Reference to Physical Processes in Estuaries
Tampa, Florida, November 12–14, 1984

Edited by Ashish J. Mehta



Springer-Verlag
Berlin Heidelberg New York Tokyo

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION Ashish J. Mehta.....	1
II.	EFFECTS OF FINE SEDIMENT RESUSPENSION IN ESTUARIES Maynard M. Nichols.....	5
III.	INTERACTION OF SURFACE WAVES AND COHESIVE SEDIMENTS: FIELD OBSERVATIONS AND GEOLOGIC SIGNIFICANCE John T. Wells and G. Paul Kemp.....	43
IV.	THE SIGNIFICANCE OF AGGREGATE PROPERTIES TO TRANSPORT PROCESSES Ray B. Krone.....	66
V.	PARTICLE AGGREGATE BREAKUP BY FLUID SHEAR James R. Hunt.....	85
VI.	RHEOLOGY OF COHESIVE SUSPENSIONS David J. A. Williams.....	110
VII.	FIELD SETTLING VELOCITIES OF ESTUARY MUDS T. Neville Burt.....	126
VIII.	SETTLING BEHAVIOR OF COHESIVE SEDIMENT Kate Kranck.....	151
IX.	VERTICAL TRANSPORT IN FINE-GRAINED SUSPENSION AND NEWLY-DEPOSITED SEDIMENT Allen M. Teeter.....	170
X.	THE TRANSITION FROM SEDIMENT SUSPENSION TO SETTLING BED Gilliane C. Sills and Don McG. Elder.....	192
XI.	AN ELECTRICAL METHOD TO MEASURE IN-SITU SEDIMENT DENSITIES Ranjan Ariathurai and Kandiah Arulanandan.....	206
XII.	A FUNDAMENTAL FRAMEWORK FOR COHESIVE SEDIMENT DYNAMICS Emmanuel Partheniades.....	219
XIII.	INFLUENCE OF BIOTA ON ERODIBILITY OF SEDIMENTS Clay L. Montague.....	251
XIV.	ON THE OBSERVATION OF COHESIVE SEDIMENT BEHAVIOR FOR ENGINEERING PURPOSES W. Reginald Parker.....	270
XV.	CHARACTERIZATION OF COHESIVE SEDIMENT PROPERTIES AND TRANSPORT PROCESSES IN ESTUARIES Ashish J. Mehta.....	290
XVI.	ESTUARIAL SEDIMENT BED MODEL Earl J. Hayter.....	326
XVII.	MODELING BOTTOM BOUNDARY LAYER AND COHESIVE SEDIMENT DYNAMICS IN ESTUARINE AND COASTAL WATERS Y. Peter Sheng.....	360

TABLE OF CONTENTS

CHAPTER	PAGE
XVIII. INTERACTION BETWEEN SURFACE WAVES AND MUDDY BOTTOM SEDIMENTS Joseph N. Suhayda.....	401
XIX. A REVIEW OF MIXTURE AND NON-LOCAL CONTINUUM MECHANICS WITH EXAMPLE APPLICATIONS TO COHESIVE SEDIMENTS A. D. Kirwan, Jr.....	429
XX. COHESIVE SEDIMENT RESEARCH AT THE WATERWAYS EXPERIMENT STATION William H. McAnally, Jr.....	456
XXI. SUMMARY Ashish J. Mehta.....	467
SUBJECT INDEX.....	469