

CONTENTS

LIST OF CONTRIBUTORS	ix
FOREWORD	xi
PREFACE	xiii

The Sedimentary System of Long Island Sound

ROBERT B. GORDON

1. Introduction	1
2. Geological History	2
3. Sea Level	12
4. Physical Oceanography	20
5. Sedimentation	25
6. Further Research	33
References	35

Storm and Tidal Energy in Long Island Sound

HENRY J. BOKUNIEWICZ AND ROBERT B. GORDON

1. Introduction	41
2. Tidal Energy	43
3. Storm Energy	48
4. Water Level Deviations	55
5. Conclusions	60
Appendix I. Formulation of the Energy Balance in an Embayment	61
Appendix II. Estimate of Tidal Dissipation of All of Long Island Sound	65
References	67

Sediment Transport and Deposition in Long Island Sound

HENRY J. BOKUNIEWICZ AND ROBERT B. GORDON

1. Introduction	69
2. Power Sources	70
3. Sediment Sources	84
4. Sediment Transport and Bottom Stability	87
5. Sediment Deposition and Distribution	95
6. Comparison with Other Estuaries	99
References	104

Sand Transport at the Floor of Long Island Sound

HENRY J. BOKUNIEWICZ

1. Introduction	107
2. Background	107
3. Long Island Sound	110
4. Sediment Transport	113
5. Formation of the Transition Zone	116
6. Discussion	122
7. Summary and Conclusions	124
References	126

The Sources and Sinks of Nuclides in Long Island Sound

K. K. TUREKIAN, J. K. COCHRAN, L. K. BENNINGER, AND ROBERT C. ALLER

1. Introduction	129
2. Sources of Trace Metals Delivered to Long Island Sound	131
3. The Distribution of Trace Metals in Long Island Sound Sediments	137
4. Trace-Metal Distributions in Mussels and Oysters: An Index of the Com- position of Suspended Particles	142
5. Processes Affecting the Deposition and Accumulation of Trace Metals in Long Island Sound Sediments	147
6. Processes Affecting the Vertical Distribution of Nuclides in the Sediment Pile	153
7. Summary	161
References	163

A Record of the Accumulation of Sediment and Trace Metals in a Connecticut Salt Marsh

RICHARD J. MCCAFFREY AND JOHN THOMSON

1. Introduction	165
2. Experimental Methods and Results	169
3. Discussion	189
4. Summary and Conclusions	227
References	229

Diagenetic Processes Near the Sediment–Water Interface of Long Island Sound.I. Decomposition and Nutrient Element Geochemistry (S, N, P)

ROBERT C. ALLER

1. Introduction	238
2. Location of Study and Station Description	238
3. Sampling	250
4. Methods	252
5. Results	257
6. Discussion	272
7. Summary	317
Appendix A. Macrofauna (>1 mm) Sieved from Flux-Core Boxes	320
Appendix B. Box-Core and Gravity-Core Data from Long Island Sound	322
Appendix C. Flux-Core Data	340
List of Symbols	343
References	343

Diagenetic Processes Near the Sediment–Water Interface of Long Island Sound.II. Fe and Mn

ROBERT C. ALLER

1. Introduction	351
2. Location and Description of Study Area	352
3. Sampling	353
4. Methods	353
5. Results	355
6. Discussion	367
7. Summary	406
List of Symbols	409
References	410
Index	417