

COASTAL SEDIMENTS '07

VOLUME ONE

PROCEEDINGS OF THE SIXTH INTERNATIONAL SYMPOSIUM ON COASTAL
ENGINEERING AND SCIENCE OF COASTAL SEDIMENT PROCESSES

May 13–17, 2007
New Orleans, Louisiana

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Foreword

The COASTAL SEDIMENTS '07 conference was organized as a technical specialty conference devoted to the physical aspects of sediment processes and morphology change in the coastal and inlet environment. Following previous conferences in the Coastal Sediments series that were held in 1977, 1987, 1991, 1999, and 2003, COASTAL SEDIMENTS '07 celebrated 30 years of the Coastal Sediments series and promoted exchange of information and views among specialists in the fields of coastal engineering, geology, oceanography, and related disciplines. The theme of COASTAL SEDIMENTS '07 was "Coastal Engineering and Science in Cascading Spatial and Temporal Scales," which established the trend of thinking and approach of the conference, as well as determined in part the composition of the papers that were presented. This theme was chosen to stimulate research devoted to the various scales of processes and their interactions at which coastal engineers and scientists must work in developing knowledge and capabilities to assist society in managing the coast under present and future conditions. Emphasis was on papers that recognize and relate to coastal morphology change of long-term consequence.

The COASTAL SEDIMENTS '07 conference returned to the site of the 1987 conference, New Orleans, Louisiana, because of the extraordinary morphologic change along the coasts of Louisiana, Mississippi, and Texas, caused by Hurricanes Katrina and Rita that struck in August and September, respectively, of 2005. In addition to the recent hurricanes, this coast is experiencing long-term natural and anthropogenic change including rapid and differential subsidence, severe reduction in renewable sediment supply, deltaic adjustment of fine-grained material, and oil and gas exploration and extraction. The theme is intended to generate papers and discussion of coastal sediment processes from the micro-scale to the regional scale at which integrated coastal design and management must be accomplished. Participants were given an overview of recent hurricane damage within the context of the long-term morphologic change in Louisiana in the Keynote Address delivered by Mr. James R. (Randy) Hanchey, Deputy Secretary of the Louisiana Department of Natural Resources.

Professor Leo van Rijn of Delft Hydraulics and the University of Utrecht, The Netherlands, accepted the 2007 Coastal Award at the Conference Awards Luncheon on May 16th. Starting in 2001, the Coastal Award has been presented every 2 years alternately at the Coastal Dynamics conference and the Coastal Sediments conference through coordination between the organizing committees of these two technical specialty conferences. The Organizing Committee of Coastal Sediments '07 joins conference participants and the extended research community in celebrating Professor van Rijn's research contributions that have greatly influenced engineers and geologists working in the areas of coastal sediment transport and morphology change.

These *Proceedings* volumes are the permanent record of the conference, containing the latest thinking and progress of the world's leading scientists and

engineers in the areas of coastal sediment transport and morphology change. The contents are a valuable source of information on coastal sediment and morphology processes ranging from basic research to case studies and lessons learned. The papers contained herein provide the most recent results and ideas in a wide range of approaches and viewpoints not assembled elsewhere in both quality and breadth. The *Proceedings* were produced in hard copy in two volumes in black and white and also provided to conference participants as a CD ROM with searchable index of PDF files in color. All papers are available to the public in PDF format via the ASCE Research Library at www.ascelibrary.org.

Three-hundred fifty abstracts were submitted to the Conference Steering Committee. On average, each abstract received five reviews, and 225 submissions were invited for development into full papers and presentation over 3 days of technical sessions. The 197 papers appearing in these *Proceedings* originated from approximately 24 countries, demonstrating the international scope of COASTAL SEDIMENTS '07. Each paper included in these *Proceedings* received positive peer review. Each paper is eligible for discussion in the *Journal of Waterway, Port, Coastal and Ocean Engineering* and can be nominated for ASCE awards.

The Steering Committee of COASTAL SEDIMENTS '07 gratefully acknowledges the assistance of many individuals, both known and anonymous, in the 2 years of preparations by an all-volunteer committee. Numerous individuals assisted the Steering Committee in review of abstracts and final papers. The efforts of the following persons are acknowledged: Matthew Arsenault, U.S. Geological Survey (USGS); Mark Byrnes, Applied Coastal Research and Engineering, Inc.; Duncan FitzGerald, Boston University; Guy Gelfenbaum, USGS; Cheryl Hapke, USGS; John Headland, Moffatt & Nichol; Todd Holland, Naval Research Laboratory; Peter Howd, USGS; Bruce Jaffe, USGS; Magnus Larson, University of Lund; Jeffrey List, USGS; Randy Parkinson, Coastal and Environmental Geological Consulting; Robert Morton, USGS; James O'Connell, Woods Hole Oceanographic Institution; Lisa Robbins, USGS; Vladimir Shepsis, Coast and Harbor Engineering; Donald Stauble, U.S. Army Corps of Engineers; Marcel Stive, Delft Hydraulics; Hilary Stockdon, USGS; and Curt Storlazzi, USGS.

We also thank the session moderators for agreeing to lend their time and experience to run the conference smoothly and productively. We are indebted to the tour leaders and their organizations for arranging and conducting memorable and stimulating technical trips. The "Geology of the Louisiana Coastal Zone: Implications for Coastal Management and Restoration" tour was led by Mark Kulp, University of New Orleans (UNO); Mike Miner, UNO; Duncan FitzGerald, Boston University; and Ioannis Giorgiou, UNO. The "Wax Lake-Atchafalaya Delta Complex Sedimentation, Stratigraphy" tour was led by Harry Roberts, Louisiana State University. Finally, we thank Lucy King of ASCE for assisting and often leading in conference logistics; Donna Dickert of ASCE for accurately producing the *Proceedings*; and Lesa Rair and Chris Hanson of COPRI for assisting with conference arrangements, including exhibitors and sponsors.

We also would like to thank our exhibitors and sponsors for Coastal Sediments 2007 for their support:

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To everyone who participated, we thank you for contributing to this remarkable conference that is precious to all of us.

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Contents

Volume One

Sediment Transport Fundamentals I

Wave-Related Transport and Nearshore Morphology	1
Leo van Rijn, Gerben Ruessink, Bart Grasmeijer, Jebbe van der Werf, and Jan Ribberink	
Closed Form Solution for Threshold Velocity for Initiation of Sediment Motion under Waves.....	15
Hans Hanson and Benoît Camenen	
Influence of Velocity Moments on Sand Bar Movement During CROSSTEX	28
Gregory Guannel, H. Tuba Özkan-Haller, Merrick C. Haller, and James T. Kirby	
Development of a New Practical Model for Sand Transport Induced by Non-Breaking Waves and Currents.....	42
Jebbe J. van der Werf, Jan S. Ribberink, and Tom O'Donoghue	
A Total Load Formula for the Nearshore.....	56
Benoît Camenen and Magnus Larson	

Sediment Transport Fundamentals II

Longshore Sand Transport Rate Measurements Using Small-Scale Physical Models	68
Roshan Suminda Ranasinghe and Shinji Sato	
Pressure-Induced Subsurface Sediment Transport in the Surf Zone	82
Ole Secher Madsen and William McKinney Durham	
Tracking Sediment Particles under Wave-Current Coexisting Field	96
Yoshimitsu Tajima, Masayuki Kozuka, Masahito Tsuru, Toshimasa Ishii, Takeharu Sakagami, Kazuo Momose, Nobuo Mimura, and Ole S. Madsen	
Sediment Transport in Response to Wave Groups Generated by High-Speed Vessels.....	110
Philip D. Osborne, Neil J. MacDonald, and Shaun Parkinson	

Sediment Transport Fundamentals III

Flume Experiments under Cat-Scan to Measure Internal Sedimentological Parameter During Sediment Transport.....	124
Stéphane Montreuil and Bernard F. Long	
The Effects of Bed Slope and Wave Skewness on Sediment Transport and Morphology	137
D. J. R. Walstra, L. C. van Rijn, M. van Ormondt, C. Brière, and A. M. Talmon	

Sediment Transport off Northeast Florida Outside the Surf Zone during Hurricanes	151
Michael Krecic, Christopher Bender, and Kristen Odroneic	

Longshore Transport

Geomorphic and Sedimentologic Evidence for Net Littoral Drift—A Review	165
Terry Healy	
Cross-Shore Variation of Predominant Longshore Sediment Transport Rate	179
Yoshiaki Kuriyama and Hikari Sakamoto	
Longshore Sand Transport Calculated by Time-Dependent Shear Stress	193
Ernest R. Smith and Nicholas C. Kraus	
Sediment Budget of the Danube Delta Coastal Zone	207
Sebastian Dan, Marcel Stive, Dirk Jan Walstra, and François Sabatier	
Field Measurements and Modeling of Longshore Sediment Transport	221
J. J. Williams, L. S. Esteves, M. A. Lisniewski, and H. L. S. Perotto	

Sediment Transport Fundamentals IV

Infragravity Waves in Mobile-Bed Laboratory Experiments	235
Florent Grasso, Hervé Michallet, and Eric Barthélemy	
Large-Scale Laboratory Modeling of Suspended Sand Concentration Fluctuations under Irregular Waves.....	248
Joachim Grüne, Ruben Kos'yan, Hocine Oumeraci, Igor Podymov, Reinold Schmidt-Koppenhagen, and Chris E. Vincent	
Change in Longitudinal Profile Using Sand of Mixed Grain Size in Large Wave Tank and its Numerical Simulation	259
Massaya Fukuhama, Takaaki Uda, Masumi Serizawa, and Toshinori Ishikawa	
Probabilistic-Deterministic Modelling of Swash Zone Morphology.....	272
T. E. Baldock, P. Kim Son, P. Manoonvoravong, M. P. Barnes, and J. M. Alsina	
Modelling Sheet Flow Sediment Transport Using Convolution Integrals.....	286
P. Guard, I. Teakle, P. Nielsen, and T. Baldock	

Shoreline Change Modeling

A Middle-Term Evolution Model for Beaches	300
Soledad Requejo, Raul Medina, and Mauricio Gonzalez	
Model for Predicting Beach Changes on Coast with Sand of Mixed Grain Size Based on Bagnold's Concept	314
Masumi Serizawa, Takaaki Uda, Toshiro San-nami, Kou Furuike, Toshinori Ishikawa, and Takayuki Kumada	
A Circulation Modeling Approach for Evaluating the Conditions for Shoreline Instabilities.....	327
Jeffrey H. List and Andrew D. Ashton	

An Alternative Explanation for the Shape of ‘Log-Spiral’ Bays.....	341
Ryan Littlewood, A. Brad Murray, and Andrew D. Ashton	

The Response of Spit Shapes to Wave-Angle Climates	351
Andrew D. Ashton, A. Brad Murray, and Ryan Littlewood	

Observed Shoreline Change

Historical Shoreline Changes and Morphodynamics of Parramore Island, Virginia (1852-2006).....	364
Trent M. Richardson and Randolph A. McBride	

Temporal and Spatial Scales of Profile and Planform Adjustment on a Nourished Beach	378
Nicole A. Elko and Ping Wang	

Shoreline Response to Dike Failure at Grand Marais Harbor, Lake Superior, Michigan.....	392
Rachel R. Roblin, Mohammad Dibajnia, Robert B. Nairn, and James P. Selegean	

Successful Beach Modelling, Monitoring and Management for a Large LNG Facility	406
Jonathan A. Kemp, Tom C. Coates, Richard Head, and Jenny S. Harcourt	

Gravel Coasts I

The Design of Stable and Aesthetic Beach Fills: Learning from Nature.....	420
Paul D. Komar	

Variation in the Organization of Gravel-Dominated Coastal Systems: Evidence from Nova Scotia and Southern England.....	434
Julian D. Orford and Simon C. Jennings	

Profile Dynamics and Particle Tracer Mobility of a Cobble Berm Constructed on the Oregon Coast.....	449
Jonathan C. Allan and Roger Hart	

Mixed Sediment Beach Processes: Kachemak Bay, Alaska.....	463
Peter Ruggiero, Peter N. Adams, and Jonathan A. Warrick	

Mixed Sand and Gravel Beach Design and Construction for Habitat Restoration	477
David Simpson, Michael Wray, John Houghton, and John Klekotka	

Gravel Coasts II

Influence of Changing Management Regimes on the Morphodynamic Response of a Mixed Gravel and Sand Barrier Beach.....	492
Andrew P. Bradbury and Julian D. Orford	

The Influence of Groundwater on Profile Evolution of Fine and Coarse Sand Beaches	506
Diane P. Horn, Tom E. Baldock, and Ling Li	

Effects of Permeability on the Performance of Mixed Sand-Gravel Beaches.....	520
Kaiming She, Louise Trim, Diane Horn, and Paul Canning	

Cross-shore and Longshore Transport of Tracer Pebbles on a Macrotidal Mixed Sediment Beach, Somme Estuary, France.....	531
J. Curoy, U. Dornbusch, C. A. Moses, D. A. Robinson, and R. B. G. Williams	

Why Are Shingle Beaches Replacing Sandy Beaches? (Coastal Zone of NW Portugal).....	545
Helena Granja and Eduardo Loureiro	

Gravel Coasts III

Field Measurements of Shore Conditions to Assess Bulkhead Effects in Thurston County, South Puget Sound.....	561
Susan P. Tonkin, Tim Abbe, José Carrasquero, and Steve Morrison	

Coral-Gravel Storm Ridges: Examples from the Tropical Pacific and Caribbean	572
Bruce M. Richmond and Robert A. Morton	

Field Observations of Step Dynamics on a Macrotidal Gravel Beach.....	584
Daniel Buscombe, Martin J. Austin, and Gerhard Masselink	

Large-Scale Scour of the Sea Floor and the Effect of Natural Armouring Processes, Land Reclamation Maasvlakte 2, Port of Rotterdam	598
Sander Boer, Edwin Elias, Stefan Aarninkhof, Dano Roelvink, and Tiedo Vellinga	

Dunes and Profiles

Dune Erosion Prediction Methods Incorporating Effects of Wave Periods.....	612
Marcel R. A. van Gent, E. Martijn Coeveld, Hans de Vroeg, and Jan van de Graaff	

Reevaluation of Equilibrium Beach Profile Scale Parameter	626
Zhanxian Wang and Robert G. Dean	

Shoreface Response to Sediment Deficit.....	633
G. M. Kaminsky, M. A. Ferland, P. J. Cowell, H. R. Mortiz, and P. Ruggiero	

Louisiana Coast

The Challenges of Restoring Louisiana Barrier Islands: From Design through Construction	647
Gordon G. Thomson, Greg M. Grandy, and Rachel Sweeney	

Field Observations of Wave-Current-Sediments Dynamics, Atchafalaya Shelf, Louisiana, USA.....	661
Sergio Jaramillo, Alex Sheremet, and Mead Allison	

Investigation of Morphosedimentary Processes on a Schematic Louisiana Barrier Island Using Process-Based Numerical Modeling	671
T. Campbell, B. de Sonnevile, L. Benedet, D. J. W. Walstra, and C. W. Finkl	

Restoration-Quality Sand from Ship Shoal, Louisiana: Geotechnical Investigation for Sand on a Drowned Barrier Island	685
Syed M. Khalil, Charles W. Finkl, Jeff Andrews, and Christopher P. Knotts	

Mississippi River Sand for Barrier Island Restoration in Louisiana: Geophysical and Geotechnical Investigations for Sand Mining	699
Jeffrey L. Andrews, Syed M. Khalil, Charles W. Finkl, and Lindino Benedet	

Mississippi River Delta

Re-Engineering the Mississippi River as a Sediment Delivery System	712
Harley S. Winer	

Sediment Flux and Fate in the Mississippi River Diversion at West Bay: Observation Study	722
T. Mitchell Andrus and Samuel J. Bentley	

Initial Morphologic and Stratigraphic Delta Evolution Related to Buoyant River Plumes	736
Joep E. A. Storms, Marcel J. F. Stive, Dano (J.) A. Roelvink, and Dirk Jan Walstra	

Physical and Numerical Modeling of River and Sediment Diversions in the Lower Mississippi River Delta	749
Clinton S. Willson, Nathan Dill, William Barlett, Samantha Danchuk, and Ryan Waldron	

A Geomorphic Process-Response Model for Chenier-Plain Evolution in Southwestern Louisiana, USA	762
Randolph A. McBride, Matthew J. Taylor, and Mark R. Byrnes	

Marshes and Wetlands

Sediment Analysis for Habitat Restoration: Adaptation of Open-Coast Beach Nourishment Principles	776
Daniel J. Heilman, Joel T. Darnell, and M. Cameron Perry	

Subsurface Exploration and Containment Dike Design Criteria for Coastal Louisiana Marsh Restoration.....	785
Russ Joffrion, Michael Poff, and Mitch Andrus	

Ice Raft Formation, Dispersion and Sedimentation on New England Salt Marshes.....	798
Brittina A. Argow, Zoe J. Hughes, and Duncan M. FitzGerald	

Effects of Large Scale Morphological Changes to a Back-Bay System	814
Lee L. Weishar, Theodore Keon, and Donald K. Stauble	

Volume Two

Deltas and River Mouths

Morphodynamic Feedbacks on Deltaic Coasts: Lessons from the Wave-Dominated Danube Delta	828
Livia Giosan	

Coastal and River Mouth Morphology Change in Sri Lanka Due to 2004 Indian Ocean Tsunami	842
Hitoshi Tanaka, Kazuo Ishino, Bandara Nawarathna, Hajime Nakagawa, and Shinichiro Yano	

Holocene Evolution of the Merrimack Embayment, Northern Massachusetts, Interpreted from Shallow Seismic Stratigraphy.....	856
Christopher J. Hein, Duncan M. FitzGerald, and Walter A. Barnhardt	

The Use of Historic Topography for the Characterization of Time-Dependent Geomorphic Change and Sediment Delivery.....	867
David A. Jaffe	

Impact of Hurricanes Katrina and Lili on the Inner Shelf of the Mississippi-Atchafalaya Delta.....	882
Mead A. Allison, Timothy M. Dellapenna, Miguel A. Gofñi, and Alex Sheremet	

Storms I

Coastal-Change Impacts during Hurricane Katrina: An Overview.....	888
Asbury Sallenger, C. Wayne Wright, and Jeff Lillycrop	

Modeling Dune Response Using Measured and Equilibrium Bathymetric Profiles.....	897
Laura A. Fauver, David M. Thompson, and Asbury H. Sallenger	

Sediment Transport along the Southwestern Louisiana Shoreline: Impact from Hurricane Rita, 2005.....	911
Walter S. Guidroz, Gregory W. Stone, and Dane Dartez	

Heterogeneity and Dynamics on a Shoal during Spring-Winter Storm Season, South-Central Louisiana, USA.....	921
Daijiro Kobashi, Felix Jose, and Gregory W. Stone	

Winter Storm and Tropical Cyclone Impacts on the Short-Term Evolution of Beaches and Barriers along the Northeastern Gulf of Mexico	935
Gregory W. Stone, Baozhu Liu, and Felix Jose	

Storms II

Impact of a Major Storm on Sediment Exchanges between the Dunes, Beach, and Nearshore.....	951
Aart Kroon, Susanne Quartel, and Troels Aagaard	

Storm Patterns and Climatic Trends Based on Water Level Fluctuations: Duck, North Carolina, USA.....	963
Joan Pope	

Hindcasting Potential Hurricane Impacts on Rapidly Changing Barrier Islands	976
Hilary F. Stockdon, David M. Thompson, and Asbury H. Sallenger, Jr.	

EOF Analysis of Morphological Response to Hurricane Ivan.....	986
Chris Houser, Stuart Hamilton, Klaus Meyer-Arendt, and Jonathan Oravetz	

Storm Surge and Sediment Process Owing to Hurricane Isidore in Terminos Lagoon, Campeche	996
Juan C. Espinal, Paulo Salles. A de A, and Diana K. Moran	

Tsunami I

Tsunami Damage Estimation in Consideration of Beach Transformation and Dike Failure	1008
Fuminori Kato, Masaya Fukuhama, Hiroyuki Fujii, and Toshimitsu Takagi	
Beach Morphology at Banda Aceh, Indonesia in Response to the Tsunami on 26 December 2004	1019
Ella Meilianda, C. Marjolein Dohmen-Janssen, Ben H. P. Maathuis, Suzanne J. M. H. Hulscher, and Jan P.M. Mulder	
Dune Morphology as an Indicator of Paleotsunamis	1033
James R. Goff	
Sedimentological Characteristics of Regional-Scale Washover Deposits Caused by Hurricane Ivan	1047
Mark H. Horwitz and Ping Wang	

Tsunami II

Impacts of the 2004 Indian Ocean Tsunami on the Southwest Coasts of Sri Lanka	1061
Robert A. Morton, James R. Goff, and Scott L. Nichol	
Reconstructing Tsunami Run-Up from Sedimentary Characteristics—A Simple Mathematical Model	1075
Richard L. Soulsby, David E. Smith, and Alan Ruffman	
Numerical Study of Tsunami Run-Up over Erodible Sand Dunes	1089
Takenori Shimosono, Shinji Sato, and Yoshimitsu Tajima	
Predicted Sedimentary Record of Reflected Bores.....	1103
Bretwood Higman, Guy Gelfenbaum, Patrick Lynett, Andrew Moore, and Bruce Jaffe	
Tsunami Inundation and Sediment Transport in Vicinity of Coastal Mangrove Forest.....	1117
Guy Gelfenbaum, Deepak Vatvani, Bruce Jaffe, and Frank Dekker	

Sea Level Rise I

From Transgression to Regression: Coastal Evolution near The Hague, The Netherlands, around 5000 Years BP.....	1129
Ad J. F. van der Spek, Jelmer Cleveringa, and Sytze van Heteren	
Changing Orientation of Ocean-Facing Bluffs on a Transgressive Coast, Cape Cod, Massachusetts	1142
Graham S. Giese and Mark B. Adams	
Modeling Barrier Island Response to Sea-Level Rise in the Outer Banks, North Carolina	1153
Laura J. Moore, Jeffrey H. List, S. Jeffress Williams, and David Stolper	
1880 to 2005 Morphological Evolution of a Transgressive Tidal Inlet, Little Pass Timbalier, Louisiana	1165
Michael D. Miner, Duncan M. FitzGerald, and Mark A. Kulp	

Sea Level Rise II

Impacts of Rising Sea Level to Backbarrier Wetlands, Tidal Inlets, and Barrier Islands: Barataria Coast, Louisiana	1179
Duncan FitzGerald, Mark Kulp, Zoe Hughes, Ioannis Georgiou, Michael Miner, Shea Penland, and Nick Howes	
Modeling Future Coastal Wetland Transition Induced by Relative Sea-Level Rise	1193
James C. Gibeaut	
Morphological Interactions within UK Estuaries: A Preliminary Analysis of Critical Rates of Sea-Level Rise	1200
Kate Rossington, Robert J. Nicholls, and Michiel A. F. Knaapen	
Variable Shoreline Responses to Sea-Level Rise and Climate Change	1214
A. Brad Murray, Lisa Valvo, Jordan Slott, Andrew Ashton, and Tom Crowley	
Model Scenarios of Shoreline Change at Kaanapali Beach, Maui, Hawaii: Seasonal and Extreme Events	1227
Sean Vitousek, Charles H. Fletcher, Mark A. Merrifield, Geno Pawlak, and Curt D. Storlazzi	

Wind-Blown Sand

Aeolian Processes, Coastal Dunes, and the <i>Coastal Engineering Manual</i>, Part III, Chapter 4—"Wind-Blown Sediment Transport"	1241
Frank Hopf and Douglas J. Sherman	
Distribution of Horizontal Distance Traveled by Saltating Sand Grains in Air	1255
Shintaro Hotta, Susumu Kubota, and Nagatomo Nakamura	
Beach Stabilization Works Against Wind Blown Sand on Beaches: Experiences from Japan	1269
Susumu Kubota, Souichi Harikai, and Shintaro Hotta	
Coastal Dunefield Evolution in Conditions of Limited Sediment Availability: Natural and Anthropogenic Controls on the Corralejo Dunes	1283
Herminia I. Valdemoro, José A. Jiménez, Ignacio Alonso, Paloma Lorente, and Manuel Rodriguez-Herrerias	

Coastal Inlets I

Hydrodynamic and Morphologic Modeling at Sebastian Inlet, FL	1297
Gary A. Zarillo and Florian G. A. Brehin	
Erosion and Channel Migration at the Shoalwater Bay Reservation, Willapa Bay, Washington	1311
Andrew Morang, David J. Mark, and Jane M. Smith	
Sediment Management Plan Development for the St. Lucie Inlet, Martin County, Florida	1326
John Ramsey, Trey Ruthven, Kevin Kremkau, and Kathy Fitzpatrick	
Sand Bypassing Restores Natural Processes to Assateague Island, Maryland	1340
Courtney A. Schupp, Gregory P. Bass, and William G. Grosskopf	

Morphological Responses to Jetty Construction at Tidal Inlet: Lake Saroma, Japan	1354
Kentaro Hayashi, Koji Hashimoto, Takayuki Sasaki, Akihiro Honma, and Seizo Matura	

Coastal Inlets II

Morphodynamics of Texel Inlet, The Netherlands	1363
Edwin P. L. Elias and Marcel J. F. Stive	
Sedimentation Patterns in a Stabilized Migratory Inlet, Blind Pass, Florida.....	1377
Ping Wang, David K. Tidwell, Tanya M. Beck, and Nicholas C. Kraus	
Approaches to Understanding Multiple-Inlet Stability.....	1391
William C. Seabergh	
Engineering Guidelines for the Siting of Sand Bypassing Discharges.....	1405
Douglass W. Mann	
Shoreline Implications of Flood-Tide Delta Morphodynamics. The Case of Port Stephens (SE Australia)	1417
Ana Vila-Concejo, Andrew D. Short, Michael G. Hughes, and Roshanka Ranasinghe	

Mud Coasts I

Using Simple Semi-Empirical Models for Integrated Assessment of Scenarios for a Navigation Channel. The Case of the Port of Ostend, Belgium	1431
Toon Verwaest	
Sediment Processes and Mangrove-Habitat Expansion on a Rapidly-Prograding Muddy Coast, New Zealand	1441
Andrew Swales, Samuel J. Bentley, Catherine Lovelock, and Robert G. Bell	
The Influence of Mud on the Inner Shelf, Shoreface, Beach, and Surf Zone Morphodynamics—Cassino, Southern Brazil	1455
Lauro J. Calliari, K. Todd Holland, Pedro S. Pereira, Rafael M. C. Guedes, and Renato E. Santo	
The Hurricane Katrina Storm Surge in Mississippi	1466
Alan W. Niedoroda, Lyle Hatchett, Himangshu Das, Andrew Cox, Robert Weaver, Stephen Baig, and Shabbar Saiffee	

Texas Inlets

Coastal Inlets of Texas, USA.....	1475
Nicholas C. Kraus	
Cedar Bayou—Inlet Dynamics and Engineering	1489
Vladimir Shepsis and Joshua Carter	
Navigation Improvements, Mouth of the Colorado River, Texas.....	1502
Ronnie G. Barcak, Nicholas C. Kraus, Lihwa Lin, Ernest R. Smith, Daniel J. Heilman, and Robert C. Thomas	

Long-Term Inlet Stability of a Multiple Inlet System, Pass Cavallo, Texas	1515
Brian K. Batten, Nicholas C. Kraus, and Lihwa Lin	

Morphologic Response to a New Inlet, Packery Channel, Corpus Christi, Texas.....	1529
Deidre D. Williams, Nicholas C. Kraus, and Carl M. Anderson	

Coastal Inlets III

Evolution of a Relocated Tidal Inlet: Mason Inlet, NC.....	1543
John M. Welsh and William J. Cleary	

Present Hydrodynamics of Ancão Inlet, 10 Years after its Relocation	1557
André Pacheco, Ana Vila-Concejo, Oscar Ferreira, and Alveirinho Dias	

The Influence of Tidal Prism and Vegetation on Tidal Channel Morphology: Implications for Marsh Stability	1571
Matthew L. Kirwan and A. Brad Murray	

Natural and Anthropogenic Influences on the Morphodynamics of Big Sarasota Pass, Florida.....	1582
Richard A. Davis, Ping Wang, and Tanya Beck	

Morphological Behavior of Seasonal Closure of Tidal Inlets	1589
Tran Thanh Tung, Marcel J. F. Stive, Jan van de Graaff, and Dirk-Jan R. Walstra	

Estuaries

The National Academies Report on Mitigating Shore Erosion along Sheltered Coasts.....	1601
Jeff Benoit and Susan Roberts	

Field Measurement and Modeling of Scour Pit Dynamics in a Sandy Estuary	1609
A. G. Davies and J. M. Brown	

Projection of Topographic Change of an Estuary Terrace by Horizontal 2-D Simulation Model, Considering Grain Size.....	1623
Toshimitsu Takagi, Go Asano, Takushi Inukai, and Masaya Fukuhama	

Examining the Contribution of Sediment Stratification to the Evolution of Seabed Morphology	1635
S. Falchetti, D. C. Conley, and M. Brocchini	

From River Basin to Barrier Reef: Pathways of Coastal Sediments	1647
Piet Hoekstra, Ton Hoitink, Frans Buschman, Ayi Tarya, and Gert van den Bergh	

Mud Coasts II

Wave Evolution on Fluid Mud Bottom.....	1660
Kevin Hall and Ali Oveis	

A Fine Sediment Transport Modeling Framework and its Application to Fluid Mud Processes.....	1669
Tian-Jian Hsu and Minwoo Son	

Field Measurement of Fine Sediment Transport Process around Navigation Channel	1678
Yasuyuki Nakagawa and Hideo Matsumoto	

Time Dependent Mud Fluidization and Irregular Wave Transformation on Muddy Profiles	1690
Mohsen Soltanpour, S. Abbas Haghshenas, and Tomoya Shibayama	

Volume Three

Regional Processes I

Regional Beach/Cliff System Dynamics along the California Coast.....	1696
Cheryl J. Hapke and Dave Reid	

Factors Influencing the Long-Term Stability of the Carbonate Sand Beaches of Mauritius	1708
Michael J. Risk, Robert B. Nairn, and Mark O. Kolberg	

Evolution of Erosion Hot Spots on a Barrier Island: Fire Island, New York.....	1722
Kathryn Seaver, Frank Buonaiuto, and Henry Bokuniewicz	

Tropical Mixed Wave/Tide Dominated Barrier-Spit System: A Case Study from NE Brazil.....	1731
Helenice Vital, Francisco Santos Neto, Jose S. Placido Junior, and Venerando E. Amaro	

Regional Shoreline and Beach Changes in the Santa Barbara Sandshed	1740
David L. Revell and Gary B. Griggs	

Regional Processes II

Engineering Activities Influencing Historical Sediment Transport Pathways at the Columbia River Mouth, WA/OR	1754
Mark R. Byrnes, Sarah F. Griffiee, and Hans R. Moritz	

Implementing Regional Sediment Management to Sustain Navigation at an Energetic Tidal Inlet	1768
Hans R. Moritz, Guy R. Gelfenbaum, George M. Kaminsky, Peter Ruggiero, Joan Oltman-Shay, and Doris J. McKillip	

Decadal Evolution of Shoreface Geometry in South Carolina, USA	1787
B. M. Reynolds, P. A. Wren, and P. T. Gayes	

Improving Statistical Validity in Calculating Erosion Hazards from Historical Shorelines	1799
Ayesha S. Genz, L. Neil Frazer, and Charles H. Fletcher	

Linking Coastal Evolution and Super Storm Dune Erosion Forecasts.....	1813
L. M. van der Burgh, K. M. Wijnberg, S. J. M. H. Hulscher, J. P. M. Mulder, and M. van Koningsveld	

LIDAR and ARGUS

CHARTS-Enabled Data Fusion for Coastal Zone Characterization.....	1827
Jennifer M. Wozencraft, Christopher L. Macon, and W. Jeff Lillycrop	

Using Topographic LIDAR Data to Delineate the North Carolina Shoreline.....	1837
Patrick W. Limber, Jeffrey H. List, Jeffrey D. Warren, Amy S. Farris, and Kathryn M. Weber	

Exploring Rippled Scour Depressions Offshore Huntington Beach, CA	1851
Eleyne L. Phillips, Curt D. Storlazzi, Peter Dartnell, and Brian D. Edwards	

A Study of Intertidal Bar Dynamics Using the Argus Video System	1865
Amaia Ruiz de Alegria Arzaburu, Suzana Ilic, and Yohama Gunawardena	

Depth of Closure Derived from Airborne Laser Bathymetry.....	1877
William Robertson V, Keqi Zhang, and Dean Whitman	

Remote Sensing

Assessing Nearshore Bar Movements during Storms Using Time-Averaged X-Band Radar Images.....	1886
Luciana S. Esteves, Jon J. Williams, and Paul S. Bell	

Longshore Migration of Coastal Features Observed with X-Band Radar.....	1900
Satoshi Takewaka, El Sayed Galal, Ryosuke Matsumoto, and Shinya Sasakura	

Detailed 3-D Models of New Zealand Barrier Stratigraphy Provide Insight into Coastal Evolution in Various Spatial and Temporal Settings	1910
Amy J. Dougherty and Scott L. Nichol	

Swash Zone

A Formula for Longshore Sediment Transport in the Swash.....	1924
Magnus Larson, Ty V. Wamsley	

Importance of the Swash Longshore Sediment Transport in Morphodynamic Models	1938
Yasuyuki Baba and Benoît Camenen	

Direct Bed Shear Stress Measurements in Bore-Driven Swash and Swash Interactions	1947
Matthew P. Barnes and Tom E. Baldock	

Limits of Beach and Dune Erosion in Response to Wave Runup Elucidated from SUPERTANK	1961
Tiffany M. Roberts, Ping Wang, and Nicholas C. Kraus	

Interaction of Dune Face and Swash Zone.....	1975
Jaap S. M. van Thiel de Vries, Linden B. Clarke, Stefan G. J. Aarninkhof, E. Matrijn Coeveld, Rob A. Holman, Meg L. Palmsten, Ad J. H. M. Reniers, Marcel J. F. Stive, and Wim S. J. Uijtewaal	

Barrier Island Breaching

Critical Width of Barrier Islands and Implications for Engineering Design.....	1988
Julie Dean Rosati and Gregory W. Stone	

Barrier Island Vulnerability to Breaching: A Case Study on Dauphin Island, Alabama	2002
Mark Hansen and Asbury H. Sallenger	

Morphologic Modeling of Multiple Barrier Island Breaches for Regional Application.....	2011
Kenneth J. Connell, Magnus Larson, and Nicholas C. Kraus	
Breach Stability and Growth Analysis Using a Morphological Model.....	2025
Santiago R. Alfageme, Masood Khondker, and Rafael Canizares	
Spatial Distribution of Cross-Shore Sediment Transport Rate for Berm Formation and Erosion.....	2037
Takayuki Suzuki, Maiko Takeuchi, Naoki Tomoda, Satomi Yamaguchi, and Yoshiaki Kuriyama	
<i>Overwash and Washover</i>	
Sediment Transport Patterns During Overwash.....	2049
Ana Matias, Ana Vila-Concejo, Óscar Ferreira, Brad Morris, and João A. Dias	
Characterization and Modeling of Washover Fans.....	2061
Chantal Donnelly and Asbury H. Sallenger	
Experimental Study of Overwash.....	2074
Billy L. Edge, Young Hyun Park, and Margery Overton	
Backbarrier Evolution and Complete Overwash Occurrence.....	2084
Ana R. Carrasco, Óscar Ferreira, Ana Matias, and João A. Dias	
<i>Sand Bars, Beach Cusps</i>	
Geomorphic Features Shaped by Crossing Waves.....	2097
Robert B. Nairn and Mohammad Dibajnia	
Observation and Modeling of Crescentic Bars in Barcelona Embayed Beaches.....	2111
F. Ribas, R. Garnier, E. Ojeda, A. Falqués, J. Guillén, and D. Calvete	
Mesoscale Behaviour of Longshore Bars—Net Onshore or Net Offshore Migration.....	2124
Troels Aagaard and Aart Kroon	
Morphological Characteristics of Rip Current Embayments on the Oregon Coast.....	2137
Matthew M. Dalon, Merrick Haller, and Jonathan Allan	
Geologic Framework of the Long Bay Inner Shelf: Implications for Coastal Evolution in South Carolina.....	2151
Walter Barnhardt, Jane Denny, Wayne Baldwin, William Schwab, Robert Morton, Paul Gayes, and Neal Driscoll	
<i>Sand Waves and Channels</i>	
A Relic Sand Wave Field in a Tidal Channel.....	2164
Shelley J. Whitmeyer and Duncan FitzGerald	
Geometric and Statistical Characteristics of Bed Forms in the Lower Mississippi River.....	2177
K. Kheiashy, J. McCorquodale, I. Georgiou, and E. Meselhe	

Bathymetric Evolution of a Sandy Bed under Transient Progressive Waves	2191
Blake J. Landry and Marcelo H. Garcia	

Analysis of Sebastian Inlet, FL, Morphologic Changes Using Complex Empirical Orthogonal Functions (CEOF).....	2199
Florian G. A. Brehin, Jo-Ann Rosario-Llartin, and Gary A. Zarillo	

Investigating Ship Induced Scour in a Confined Shipping Channel	2213
David Taylor, Kevin Hall, and Neil MacDonald	

Beach Nourishment

Evolution of Grain-Size Distribution on Bogue Banks: Implications for Selection of Borrow Material.....	2229
Timothy W. Kana	

New Findings in Equilibrium Grain Size Distribution	2242
Jordi Galofre, Raúl Medina, Gabriela Medellin, and César Vidal	

Determination of Overfill Factor for Offshore Sand in Barrier Island Restoration on the Louisiana Coast.....	2254
Daniel L. Bolinger, Dominic Izzo, and Edward J. Schmeltz	

Broward County Beach Demonstration Project: From Beers to Beaches.....	2265
Christopher Makowski, Gordon Thomson, Peter Foye, and Stephen Higgins	

Beach Nourishment Evolution in the Cancún Beach, Quintana Roo, México.....	2279
Diana K. Morán, Paulo Salles, A de A, José C. Sánchez, and Juan C. Espinal	

Case Studies

Geomorphic Response and Elements of Sediment Budget at St. Joseph Harbor, Southeast Lake Michigan	2292
Mohammad Dibajnia, Robert B. Nairn, and James P. Selegear	

Chesapeake Bay: Headland Control Systems Performance Including Hurricane Isabel.....	2306
C. Scott Hardaway, Jr. and James R. Gunn	

Coastal Protection against Wind-Wave Induced Erosion Using Soft and Porous Structures: A Case Study at Lake Biel, Switzerland	2321
Selim M. Sayah and Stephan Mai	

Physical Processes Study of Goldsmith Inlet, New York.....	2331
Michael J. Morgan and Nicholas C. Kraus	

Dredging

Design of Navigation Channel Deepening Works Using a Morphological Model in Barranquilla, Columbia.....	2345
Rafael Cañizares, Santiago Alfageme, and Tucker Mahoney	

Beach Renourishment through Spoil Disposal Downdrift of a Dredged Entrance Channel	2358
Kyle C. Spiers and Terry R. Healy	

Desktop Methodology for Estimating Maintenance Dredging Requirements for Widened and Deepened Navigation Channels	2372
Larry A. Wise and Oleg Mouraenko	

A Mass-Balance, Control-Volume Approach for Estimating Vertical Sediment Flux and Settling Velocity within Dredge Plumes.....	2382
S. Jarrell Smith and Carl T. Friedrichs	

What Does “Physical Regeneration” of Marine Aggregate Dredging Sites Mean?	2394
Markus Diesing	

Beach Nourishment and Structures

Performance of Beach Fill and Nearshore Breakwaters at East Ocean View Beach, Norfolk, VA	2402
Peter Elkan, Lural Krynock, Nicole Vanderbeke, James White, and Lee Rosenberg	

Assessing Fill Compatibility through Project Performance Evaluation.....	2418
Donald K. Stauble	

Coastal Structure Design for Shore Protection and Sand Retention: Practical Aspects.....	2432
John R. Headland, Santiago Alfageme, Eric Smith, and Peter Kotulak	

Quantitative Evaluation of Controlling Effect of Headland on Longshore Sand Transport Using Model for Predicting Changes in Contour Lines and Grain Size	2446
Takayuki Kumada, Takaaki Uda, and Masumi Serizawa	

Evaluation of Controlling Effect of Sand Transport by Detached Breakwaters Built on Dynamically Stable Beach.....	2460
Takaaki Uda, Masumi Serizawa, and Toshinori Ishikawa	

Seafloor Mapping

Geologic Characterization of Offshore of Shelf Areas Using usSEABED for GIS Mapping, Modeling Processes and Assessing Marine Sand and Gravel Resources	2473
S. Jeffress Williams, James D. Bliss, Matthew A. Arsenault, Chris J. Jenkins, and John A. Goff	

USGS Advances in Integrated, High-Resolution Sea-Floor Mapping: Inner Continental Shelf to Estuaries.....	2487
Jane F. Denny, William C. Schwab, David C. Twichell, Thomas F. O'Brien, William W. Danforth, David S. Foster, Emile Bergeron, Charles W. Worley, Barry J. Irwin, Bradford Butman, Page C. Valentine, Wayne E. Baldwin, Robert A. Morton, E. Robert Thieler, David R. Nichols, and Brian D. Andrews	

A Rapid Compatibility Analysis of Potential Offshore Sand Sources for Beaches of the Santa Barbara Littoral Cell.....	2501
Neomi Mustain, Gary Griggs, and Patrick L. Barnard	

Presence of Beach-Compatible Sediments in Offshore Borrows: New Challenges and Trade Offs in Developing Codifications	2515
Charles W. Finkl, Jeffrey L. Andrews, and Lindino Benedet	

Indexes

Subject Index	I-1
Author Index.....	I-5