

Special Issue 77 - Coastal Resilience: Exploring the Many Challenges from Different Viewpoints

Source: Journal of Coastal Research, 77(sp1)

Published By: Coastal Education and Research Foundation

URL: https://doi.org/10.2112/1551-5036-77.sp1.i

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.



COVER PHOTOGRAPH





Boca de Camichín, Nayarit, Mexico. At the mouth of the San Pedro River, fresh and salt water mix, giving life to 92,000 hectares of mangroves and lagoons, an area known as Marismas Nacionales. A dynamic equilibrium has been maintained in the area over the last 7,000 years, despite changes in sea level, with deltas, tidal channels, flood plains and marshlands providing habitats for a rich variety of flora and fauna. For hundreds of years, an abundance of prawns and oysters have been harvested here, even though a permanent human settlement has only existed for the last 50 years. A local population of just over 1000 live primarily by fishing and agriculture. (Photograph taken by Rodolfo Silva Casarín, Instituto de Ingeniería, Universidad Nacional Autónoma de México.)

Coastal Resilience: Exploring the Many Challenges from Different Viewpoints

Guest Editors: M.L. Martínez, A. Taramelli and R. Silva



Journal of

Coastal Research

Special Issue #77

An International Forum for the Littoral Sciences
Charles W. Finkl
Editor-in-Chief



Published by



JOURNAL OF COASTAL RESEARCH

An International Forum for the Littoral Sciences

CHEF-HERAUSGEBER

EDITOR-IN-CHIEF Charles W. Finkl

RÉDACTEUR-EN-CHEF

Coastal Education and Research Foundation, Inc. [CERF] **Editorial Offices:**

ASSOCIATE EDITORS

25 Jake Ridge Trail Fletcher, NC 28732, U.S.A.

5130 NW 54th Street (Editorial Office, Coconut Creek) Coconut Creek, FL CERF/JCR Website: http://www.CERF-JCR.org 33073, U.S.A. e-mail: cfinkl@cerf-jcr.com

BOOK REVIEW EDITOR

J. Andrew G. Cooper School of Environmental Sciences University of Ulster Coleraine, N. Ireland jag.cooper@ulster.ac.uk

DEPUTY EDITOR-IN-CHIEF

Christopher Makowski Coastal Education and Research Foundation, Inc. / CERF/ 5130 NW 54th Street Coconut Creek, FL 33073, U.S.A. cmakowski@cerf-jcr.com

EDITORIAL ASSISTANT

Barbara Russell Coastal Education and Research Foundation, Inc. [CERF] 5130 NW 54th Street Coconut Creek, FL 33073, U.S.A. barbara@cerf-jcr.com

WEB DESIGN & DEVELOPMENT

Jon Finkl Media Mine 17600 River Ford Drive Davidson, NC 28036, U.S.A. jon@mediamine.net

MITHERAUSGEBER

Edward J. Anthony Coastal Geomorphology Dunkerque, France

Kenneth Banks Coral Reef Geomorphology Plantation, Florida

Patrick Barnard Coastal Geomorphology Santa Cruz, California

Lindino Benedet Oceanography, Modeling Florianopolis, SC, Brazil

David M. Bush Coastal Geology & Hazards Carrollton, Georgia

Ilya V. Buynevich Coastal Geology Philadelphia, Pennsylvania

Javier A. Carrió Sediment Processes Valencia, Spain

Mark Crowell Coastal Zone Management McLean, Virginia

Omar Defeo Sandy Beach Ecology Montevideo, Uruguay

J. Javier Diez Coastal Geomorphology Madrid, Spain

Joseph F. Donoghue Coastal Morphology & Hazards Orlando, Florida

Jean Ellis Aeolian Sediment Transport Columbia, South Carolina

Luciana Esteves Coastal Flooding & Erosion

Bournemouth, England, UK Oscar Manuel Ferreira

Storm Impacts Faro, Portugal Duncan M. FitzGerald

Sediment Transport Boston, Massachusetts

Chip Fletcher Coastal Geology Honolulu, Hawaii Kazimierz K. Furmańczyk Marine Cartography

Szczecin, Poland

Allen Gontz Geophysics, Stratigraphy San Diego, California

Gary B. Griggs

Coastal Engineering & Hazards Santa Cruz, California

Pramod Hanamgond Coastal Geomorphology Belgaum, India

Hans Hanson Coastal Protection Lund, Sweden

Simon Haslett Paleoceanography Swansea, Wales, UK

David Hill Nearshore Hydrodynamics Corvallis, Oregon

Michael Hilton Dune Geomorphology & Ecology Dunedin, New Zealand

Carl H. Hobbs, III Coastal Geology, Sand Mining Gloucester Point, Virginia

James R. Houston Sea-Level Change Vicksburg, Mississippi

Wenrui Huang Coastal Hydrodynamics Tallahassee, Florida

Michael G. Hughes Coastal Morphodynamics Canberra, ACT, Australia

Federico I. Isla Sea-Level Change Mar Del Plata, Argentina

Nancy L. Jackson Coastal Geomorphology Newark, New Jersev Markes E. Johnson

Paleoshores, Coastal Sand Dunes Williamstown, Massachusetts

Timothy R. Keen Waves & Circulation Stennis Space Center, Mississippi

Dieter H. Kelletat Coastal Geomorphology Essen/Cologne, Germany Joseph T. Kelley Sea-Level Change Orono, Maine

Vic Klemas Remote Sensing Newark, Delaware

Nobuhisa Kobayashi Coastal Engineering Newark. Delaware

Vladimir N. Kosmynin Coral Reefs, Coastal Ecology Tallahassee, Florida

Joseph L. Kowalski Estuarine Plant Ecology Edinburg, Texas

Michael J. Lace Coastal Landforms & Processes West Branch, Iowa

Stephen P. Leatherman Barrier Islands, Beach Erosion Miami, Florida

Charles Lemckert Environmental Fluid Dynamics Southport, Qld, Australia

Ioannis Liritzis Geophysical Proxy Data Rhodes, Greece

Jeffrey H. List Shoreline Change Processes Woods Hole, Massachusetts Michel M. de Mahiques

Sediment Processe São Paulo, Brazil

Gonzalo C. Malvárez-Garcia Beach Morphodynamics Seville, Spain

Ashish J. Mehta Coastal Engineering Gainesville, Florida

Nobuo Mimura Environmental Engineering Ibaraki, Japan

Fatima Navas Coastal Morphodynamics Seville, Spain

Robert Nicholls Global Climate Change Southampton, England, UK Karl F. Nordstrom

Coastal Geomorphology New Brunswick, New Jersey

Julian Orford

Gravel Beaches, Storm Events Belfast, Northern Ireland, UK

Phil D. Osborne Sediment Dynamics

Shoreline, Washington Hugh Parker
Airborne Lidar Bathymetry

Adelaide, SA, Australia Charitha B. Pattiaratchi

Physical Oceanography Crawley, WA, Australia Carlos Pereira da Silva

Coastal Zone Management Lisbon, Portugal

Michael Phillips Coastal Geomorphology Swansea, Wales, UK

Orrin H. Pilkey, Jr. Coastal Geology Durham, North Carolina

Paolo A. Pirazzoli Sea-Level Changes Paris, France Nobert P. Psuty

Coastal Geomorphology New Brunswick, New Jersey

Ulrich Radtke Coastal Geomorphology Duisburg-Essen, Germany

Elijah W. Ramsey, III $Coastal\ Image\ Processing$ Lafayette, Louisiana

Kirt Rusenko Sea Turtles, Dune Restoration Boca Raton, Florida

Daniele Scarponi Marine Paleoecology Bologna, Italy

Anja Scheffers Coastal Evolution Lismore, NSW, Australia Vic Semeniuk

Mangrov Perth, WA, Australia COMITÉ DE REDACTION

Douglas J. Sherman Coastal & Aeolian Geomorphology Tuscaloosa, Alabama

Andrew D. Short

Coastal Geomorphology Sydney, NSW, Australia Pravi Shrestha

Coastal Engineering Irvine, California Alejandro J. Souza

Coastal & Sediment Processes Liverpool, England, UK

Tom Spencer Biogeomorphology Cambridge, England, UK

Marcel Stive Coastal Hydrodynamics Delft, The Netherlands Vallam Sundar

Coastal Engineering Chennai, India Adam D. Switzer Coastal Hazards, Sea-Level

Change NTU, Singapore E. Robert Thieler

Marine Geology Woods Hole, Massachusetts Arthur C. Trembanis Coastal Morphodynamics Newark, Delaware

Frank Van Der Meulen Coastal Zone Management Delft, The Netherlands

Ian J. Walker Coastal Dunes & Sediments Tempe, Arizona

Ping Wang Beach Morphodynamics Tampa, Florida Allan Williams

Coastal Geology Swansea, Wales, UK

Harry F. Williams Paleotempestology Denton, Texas Colin D. Woodroffe Coastal Geomorphology Wollongong, NSW, Australia

Robert S. Young Coastal Processes Cullowhee, North Carolina Guoliang Yu Sediment Transport Shangai, China





FOR INDIVIDUAL INTERNATIONAL CERF MEMBERS, \$519.00 FOR US INSTITUTIONS, AND \$541.00 FOR INTERNATIONAL INSTITUTIONS BY THE COASTAL EDUCATION AND RESEARCH FOUNDATION, INC. (CERF), 5130 NW 54TH STREET, COCONUT CREEK, FL 33073–3713. PERIODICALS POSTAGE PAID AT FORT LAUDERDALE, FL AND ADDITIONAL MAILING OFFICES. **POSTMASTER:** SEND ADDRESS CHANGES TO *JOURNAL OF COASTAL* RESEARCH, ALLEN PRESS ASSOCIATION MANAGEMENT, P.O. BOX 1897, LAWRENCE, KS 66044-3018.

© 2017 Coastal Education and Research Foundation, Inc. [CERF].

This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

COASTAL EDUCATION AND RESEARCH FOUNDATION

5130 NW 54th Street Coconut Creek, FL 33073, U.S.A.

Officers of the Foundation

Founded in 1983 by: Charles W. Finkl, Sr. (Deceased), Charles W. Finkl, Jnr., Rhodes W. Fairbridge (Deceased), and Maurice L. Schwartz (Deceased)

President & **Executive Director:** Charles W. Finkl

Senior Vice President & **Assistant Director:** Christopher Makowski

Secretary:

Heather M. Vollmer

Executive Assistant:

Barbara Russell

Regional Vice Presidents

North America James R. Houston Victor V. Klemas Orrin H. Pilkey, Jr.

South America Omar Defeo

Southeast Asia Nobuo Mimura

Western Europe Carlos Pereira da Silva Michael Phillips

Marcel J.F. Stive **Eastern Europe** Kazimierz K. Furmanczyk

> Oceania Charles Lemckert Vic Semeniuk Andrew D. Short

Board of Directors (Trustees)

Charles W. Finkl Erlend J. Frederickson Chris Makowski Gary B. Griggs James R. Houston Robert Huff Joseph T. Kelley

J. Andrew G. Cooper Victor V. Klemas Charles Lemckert Carlos Pereira da Silva Michael Phillips Orrin H. Pilkey, Jr. Norbert P. Psuty

Elijah W. Ramsey, III Vic Semeniuk Andrew D. Short Daniel J. Stanley Marcel J.F. Stive Allan Williams

Lifetime Members

Frédéric Bouchette Yong-Sik Cho Nicholas K. Coch Hany Elwany Kazimierz K. Furmanczyk Björn Kjerfve

Stephen P. Leatherman Charles Lemckert Gonzalo C. Malvárez-Garcia Fatima Navas Philip D. Osborne

Yoshiki Saito Charles Thibault Erik van Wellen Ya Ping Wang Wei Zhang

Patron Members

Lindino Benedet Georges Chapalain Carl H. Hobbs, III Timothy W. Kana

Norbert P. Psuty Robert S. Young

CERF Society Information

The Coastal Education and Research Foundation [CERF] is a nonprofit society dedicated to the advancement of the coastal sciences. The Foundation is devoted to the multi-disciplinary study of the complex problems of the coastal zone. The purpose of CERF is to help translate and interpret coastal issues for the public and to assist professional research and public information programs. The Foundation specifically supports and encourages field and laboratory studies on a local, national, and international basis. Through the medium of scientific publications, television, and radio CERF brings accurate information to the public and coastal specialists on all aspects of coastal issues in an effort to maintain or improve the quality of shoreline resources.

Because CERF is concerned with broad environmental issues, our efforts concentrate on significant problems such as maintenance of good quality (potable) water with adequate supply, and hazards associated with potential beach erosion, flooding, and susceptibility of developed shorelines to storm surge and wave attack. By focusing attention on these potential man-made and natural hazards, it is hoped that our research efforts will help others improve the quality of life in diverse coastal areas. CERF thus aims to stimulate awareness of coastal (marine and freshwater shorelines) land and water problems; initiate and foster research and innovation to promote long-term coastal productivity; establish an educational forum for the debate of contentious coastal issues; and develop new principles and approaches for enlightened coastal management, and encourage their adoption and use.



$\hfill\Box$ CERF MEMBERSHIP $\hfill\Box$

Members are individuals that support the aims of the foundation through personal and group efforts or by donations. Memberships are available in different categories with privileges.

Subscription information is available online at www.cerf-jcr.org. Subscriptions office: Allen Press, Inc., P.O. Box 1897, Lawrence, KS 66044, U.S.A. CERF@allenpress.com

Editor-in-Chief

Charles W. Finkl Ph.D., CSci, CMarSci, FIMarEST, CPGS, CPSSc, PWS, M.ASCE

Dr. Charles W. Finkl is President and Executive Director of the Coastal Education and Research Foundation (CERF), publisher of the JCR. Charlie, a founding editor of the Journal of Coastal Research, has served as Editor-in-Chief for the past 33 years. He is a Research Professor in the Department of Geosciences at Florida Atlantic University in Boca Raton, Florida. He received his Bachelor and Master of Science degrees from Oregon State University and the Ph.D. from the University of Western Australia. He is a member of more than 20 professional societies and has published more than 200 professional papers, books, and reports. He is a Chartered Marine Scientist (CMarSci) [Institute of Marine Engineering, Science and Technology], Certified Professional Geological Scientist (CPGS) [American Institute of Professional Geologists (AIPG)], Certified Professional Soil Scientist (CPSSc) [American Registry of Certified Professionals in Agronomy, Crops, and Soils], and a Professional Wetland Scientist (PWS) [Society of Wetland Scientists]. Charlie has field experience in parts of the USA, Caribbean area, Brazil, Honduras, Russia, South Africa, Western Europe, Australasia, and South Pacific islands. He is also the Series Editor of the Encyclopedia of Earth Sciences Series that is published by Springer (Germany). There are more than twenty-eight volumes in the Series and about twenty-five are available online. Charlie also serves on the Editorial Board of the International Journal of Environmental Studies (Routledge) and is an occasional peer reviewer for many other professional journals.

Charlie has interests and expertise in the general areas of surficial geology, coastal and marine geomorphology (including coastal classification), coastal/marine biophysical environments, exploration geochemistry, soils and weathering (regolith geology), coastal zone management and engineering applications or impacts on natural systems (including erosion control and shore protection), coastal hydrology including submarine freshwater and mineralized seeps, subaerial and marine structural geology, natural hazard mitigation in coastal zones, marine environments and coastal wetland protection and restoration, and remote sensing (e.g., land cover classification in coastal wetlands, advection-diffusion turbidity plumes in coastal waters, delineation of bottom types and sand resources), effluent disposal and pollution of wetlands and estuaries, water resources mapping and conservation, time series studies of wetland hydroperiod and soil moisture.

Official Meeting of CERF International Coastal Symposium (ICS)

The International Coastal Symposium (ICS) was originally set up by Per Bruun (deceased) and Charlie Finkl as the official meeting of the Coastal Education and Research Foundation (CERF), with one of the first meetings being held in Hilton Head, South Carolina, in 1993. After the repeated success of these meetings, CERF moved the ICS to the international scene holding these conferences in conjunction with local sponsors in Australia, Brazil, Iceland, New Zealand, Northern Ireland, Poland, and Portugal. The ICS brings together delegates from all over the world to collaborate and discuss the most current coastal research studies and projects. During the ICS 2014, which was held in Durban, South Africa, a grand celebration took place to mark the 30th Anniversary of CERF and the JCR. Our next ICS meeting is scheduled for May of 2018 in Busan, South Korea. For more information, please visit www.cerf-jcr.org.



JOURNAL OF COASTAL RESEARCH

An International Forum for the Littoral Sciences

Supporting Scientific Institutions

- · Consorzio Nazionale Interuniversitario per le Scienze del Mare (Co.N.I.S.Ma.) [Rome, Italy; www.conisma.it/]
- Delft University of Technology [Department of Hydraulic Engineering, Delft, The Netherlands; http://www.citg.tudelft.nl/over-faculteit/afdelingen/hydraulic-engineering/]
- Duke University [Earth and Ocean Sciences Division, Durham, North Carolina, U.S.A.; https://nicholas.duke.edu/marinelab]
- Griffith University [Center for Infrastructure Engineering and Management, Southport, Queensland, Australia; https://www.griffith.edu.au/]
- Ibaraki University [Center for Water Environmental Studies, Mito, Japan; http://www.cwes.ibaraki.ac.jp/]
- International Geographical Union (IGU) [Commission on Coastal System (CCS); http://www.igu-ccs.org/]
- Royal Belgian Institute of Natural Sciences [Management Unit of the North Sea Mathematical Models (MUMM), Brussels, Belgium; http://www.mumm.ac.be/EN/index.php]
- Rutgers University [Institute of Marine and Coastal Sciences (IMCS), New Brunswick, New Jersey, U.S.A.; http://marine.rutgers.edu/main/]
- Universidad de la República [Marine Science Unit, Montevideo, Uruguay; http://www.imber.info/Science/National-Network/URUGUAY]
- Universidade Nova de Lisboa [e-Geo Center for Geographical and Regional Planning Studies, Lisbon, Portugal; http://e-geo.fcsh.unl.pt/]
- University of California, Santa Cruz [Institute of Marine Sciences, Santa Cruz, California, U.S.A.; http://ims.ucsc.edu/]
- University of Delaware [School of Marine Science and Policy, Newark, Delaware, U.S.A.; http://www.ocean.udel.edu]
- University of Maine [Climate Change Institute, Orono, Maine, U.S.A.; http://climatechange.umaine.edu/]
- University of Sydney [Coastal Studies Unit, Sydney, New South Wales, Australia; http://sydney.edu.au/]
- University of Szczecin [Institute of Marine and Coastal Science, Szczecin, Poland; http://www.wnoz.ztikm.szczecin.pl/en/1/inom/structure/]
- University of Ulster [Environmental Sciences Research Institute, Coleraine, Northern Ireland; http://www.ulster.ac.uk/es/research/l
- University of Wales, Trinity Saint David [Swansea Metropolitan University, Mount Pleasant, Swansea, South Wales, U.K.; http://www.uwtsd.ac.uk/]
- U.S. Army Corps of Engineers [Coastal and Hydraulics Laboratory (CHL), Vicksburg, Mississippi, U.S.A.; http://chl.erdc.usace.army.mil/]
- U.S. Geological Survey [National Wetlands Research Center, Lafayette, Louisiana, U.S.A.; http://www.nwrc.usgs.gov/]

Aims and Scope of the Journal

Journal of Coastal Research, an International Forum for the Littoral Sciences, is dedicated to all aspects of coastal research. These include geology, biology, geomorphology (physical geography), climate, littoral oceanography, hydrography, coastal hydraulics, environmental (resource) management, engineering, and remote sensing. Although each field functions effectively within its own purview, the cross-disciplinary nature of coastal studies requires familiarity with other fields as well. Hence, the scope of topics is necessarily broad in order to address the complexity of coastal biophysical and socio-economic interactions. Because of the wide range of interrelated topics, the journal invites original contributions and manuscripts dealing with theory, methodology, techniques, and field or applied topic studies on interdisciplinary coastal issues.

The journal encourages the dissemination of knowledge and understanding of the coastal zone by promoting cooperation and communication between specialists in different disciplines. Natural scientists, for example, are encouraged to collaborate with professionals in other fields to prepare contributions relating to the coastal zone that foster increased appreciation of coastal environments and processes. By means of this journal, with its scholarly and professional papers, systematic review articles, book and symposia reviews, communications and news, and special topical issues, an international forum for the development of integrated coastal research is provided.

Advertising, Editorial, and Subscription Information

Advertising and Editorial Office: All advertising and editorial correspondence should be sent to Dr. Charles W. Finkl, Editor-in-Chief, Journal of Coastal Research, 5130 NW 54th Street, Coconut Creek, FL 33073, U.S.A. PHONE: 828-333-2300. E-MAIL: cfinkl@cerf-jcr.com

Subscription Information: The *Journal of Coastal Research* is a bimonthly publication. Calendar-year (2017) print and online subscription prices for the JCR are: \$115.00 for US CERF members / \$125.00 for International CERF members (\$95.00 for online only), and \$519.00 for US institutions / \$541.00 for International institutions (\$437.00 for online only). Additional surface charges may apply to subscribers located outside of the USA. For additional membership and subscription forms and information, please go to www.CERF-JCR.org. To obtain a membership or subscription form by mail, please send request to Journal of Coastal Research, P.O. Box 7065, Lawrence, KS 66044. Back Issues and Special Issues of the JCR, when available, can be directly purchased at www.CERF-JCR.org.

The Journal of Coastal Research is currently surveyed in Applied Science & Technology Abstracts; Applied Science & Technology Index (H.W. Wilson); Aquatic Sciences & Fisheries Abstracts; BIOBASE; Biological Abstracts; BIOSIS Previews (Thomson); CAB International Abstracts (CABI); CSA Civil Engineering Abstracts (ProQuest); Current Awareness in Biological Sciences (Elsevier); Current Contents/Agriculture, Biology, & Environmental Sciences (Thomson); Ecology Abstracts (ProQuest); Environmental Sciences & Pollution Management; GeoAbstracts [Geographical Abstracts: Physical Geography; Ecological Abstracts; Geological Abstracts; GEOBASE] (Elsevier); GeoRef; Meteorological & Geoastrophysical Abstracts (ProQuest); Oceanographic Literature Review (Elsevier); Physical Sciences Digest (CSA, Ebsco); Pollution Abstracts (ProQuest); Referativnyi Zhurnal; Science Citation Index; SciSearch (Thomson); SCOPUS; Water Resources Abstracts (Bethesda); Zoological Record (Thomson).



Journal of Coastal Research

SPECIAL ISSUE NO. 77 (pages 1-153) ISSN 0749-0208

SPRING 2017

CONTENTS

Resistance and Resilience: Facing the Multidimensional Challenges in Coastal Areas	
M. Luisa Martínez, Andrea Taramelli, and Rodolfo Si	lva
Movement of Wooden Blocks on Ground and Pilings in Swash Zone	
Xavier Chávez Cárdenas and Nobuhisa Kobaya	shi
Measurements and Modelling of Small Scale Processes of Vegetation Preventing Dune Erosion	
Edgar Mendoza, Itxaso Odériz, M. Luisa Martínez, and Rodolfo Si	lva
Water Quality and Mangrove-Derived Tannins in Four Coastal Lagoons from the Gulf of Mexico with Variable Hydrolo Dynamics	
A Retrospective Analysis of Water Quality in an Open Bay on the Mexican Pacific	
Guadalupe de la Lanza-Espino, Rodolfo Silva, Salvador Hernández-Pulido, Ismael Mariño-Tapia, and Cecilia Enríqu	ıez
Impact of Inlet Management on the Resilience of a Coastal Lagoon: La Mancha, Veracruz, Mexico	
Valeria Chávez, Edgar Mendoza, Erika Ramírez, and Rodolfo Si	lva
A Hybrid Power Law Approach for Spatial and Temporal Pattern Analysis of Salt Marsh Evolution Evolution	
Andrea Taramelli, Emiliana Valentini, Loreta Cornacchia, and Fabio Bozzo	eda
Detection of Natural and Anthropic Features on Small Islands	
Sergio Cappucci, Emiliana Valentini, Maurizio Del Monte, Marida Paci, Federico Filipponi, and Andrea Taram	elli
Hydrological Barrier as a Cause of Salt Marsh Loss	
Thomas P. Huff and Rusty A. Fea	
Restoring Tidal Equilibrium: Removing a Hydrologic Barrier and Lowering Salinity at the Magnolia Inlet, Texas	
Thomas P. Huff and Rusty A. Fea	
Hydrology, Soil Carbon Sequestration and Water Retention along a Coastal Wetland Gradient in the Alvarado Lagoon System, Veracr Mexico	
Patricia Moreno-Casasola, María E. Hernández, and Adolfo Campos	C.
Ecosystem Services to Enhance Coastal Resilience in Mexico: The Gap between the Perceptions of Decision-Makers and Academics	
Debora Lithgow, M. Luisa Martínez, Rodolfo Silva, Davide Geneletti, Juan B. Gallego-Fernández, Carlos R. Cerdán, Edg	gar
Mendoza, and Allison Jermain	
Coastal Flooding, Uncertainty and Climate Change: Science as a Solution to (mis) Perceptions? A Qualitative Enquiry in Three Coasta	al
European Settings	
Jean-Paul Vanderlinden, Juan Baztan, Nabil Touili, Idrissa Oumar Kane, Bénédicte Rulleau, Pedro Diaz Simal, Lu	ıca
Pietrantoni, Gabrielle Prati, and Fabio Zagonari	
The Role of Social Networks in the Sustainability Transformation of Cabo Pulmo: A Multiplex Perspective	
Alfonso Langle-Flores, Petr Ocelík, and Octavio Pérez-Maque	
Human Impact on Coastal Resilience along the Coast of Veracruz, Mexico	
	ruz











R \boldsymbol{A} \boldsymbol{A} \boldsymbol{T} \boldsymbol{A}

R \boldsymbol{E} S \boldsymbol{E} R \boldsymbol{C}

77