

JURASSIC COAST, DORSET, ENGLAND

Source: Journal of Coastal Research, 33(5)

Published By: Coastal Education and Research Foundation

URL: https://doi.org/10.2112/1551-5036-33.5.ii

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.

Journal of

Coastal Research

VOL. 33, NO. 5 • CERF • September 2017



Published by

CERESEARCH FOUNDATION

Years of Service

An International Forum for the Littoral Sciences Charles W. Finkl

Editor-in-Chief



Year of Service

JOURNAL OF COASTAL RESEARCH

An International Forum for the Littoral Sciences

CHEF-HERAUSGEBER

EDITOR-IN-CHIEF Charles W. Finkl

Coastal Education and Research Foundation, Inc. [CERF]

Editorial Offices:

5130 NW 54th Street33073, U.S.A.

(Editorial Office, Coconut Creek) Coconut Creek, FL CERF/JCR Website: http://www.CERF-JCR.org

e-mail: cfinkl@cerf-jcr.com

BOOK REVIEW EDITOR

25 Jake Ridge Trail

Fletcher, NC

28732, U.S.A.

Luciana S. Esteves Faculty of Science and Technology Bournemouth University Dorset, England, U.K. lesteves@bournemouth.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

RÉDACTEUR-EN-CHEF

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 Vanda Claudino-Sales

Coastal Dynamics, Dunes Ceará, Brazil

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

Niki Evelpidou

Sea-Level Change, Palaeogeography Athens, Greece 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 Jersey

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

ASSOCIATE EDITORS

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 Processes 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 Hazards, Palaeoclimatology Lismore, NSW, Australia

Vic Semeniuk Mangroves 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 Phil Watson Sea-Level Change Gosford, NSW, Australia

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].

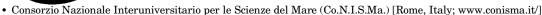
This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).



JOURNAL OF COASTAL RESEARCH

An International Forum for the Littoral Sciences

Supporting Scientific Institutions



- 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); Oceanic 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).



COVER PHOTOGRAPH





Jurassic Coast, Dorset, England. Durdle Door is a natural sea arch created by wave erosion in the limestone cliffs along the Dorset coast of southwest England, near West Lulworth. The arch has formed on a concordant coastline where bands of rock possessing contrasting hardness run parallel to the shore. The rocks here are of Jurassic Age, originally consisting of a band of resistant Portland limestone that has been drastically tilted upwards. With a rock strata bedding that is nearly vertical, weaker, easily eroded limestone beds are selectively coupled with stronger, much thicker bands of chalk. This geologic feature has allowed mechanical weathering through wave attack to specifically remove the weaker rock layers, creating this spectacular arch.

The arch is actually on private property as part of the Lulworth Estate, but is currently open to the public. Around this part of the coast nearly all of the limestone has been removed by sea erosion, with the remainder forming the small headland that includes the arch. UNESCO teams continually monitor the condition of both the arch and adjacent beach. The name Durdle is derived from the Old English 'thirl' meaning bore or drill. (Photograph taken 30 September 2015 by Gary Griggs, University of California, Santa Cruz [UCSC], Santa Cruz, California, U.S.A.)

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

Vanda Claudino-Sales Omar Defeo

Oceania

Charles Lemckert Anja Scheffers Vic Semeniuk Andrew D. Short

Western Europe

Luciana Esteves Carlos Pereira da Silva Michael Phillips Marcel J.F. Stive

Eastern Europe

Niki Evelpidou Kazimierz K. Furmanczyk

> Southeast Asia Nobuo Mimura

Board of Directors (Trustees)

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

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.

International Coastal Symposium (ICS) Official Meeting of CERF

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

VOL. 33, NO. 5 (pages 997–1242) ISSN 0749-0208 September 2017

CONTENTS

RESEARCH ARTICLES

Boulder Ridges and Washover Features in Galway Bay, Western Ireland	99'
Coastal Eolian Sand-Ramp Development Related to Paleo-Sea-Level Changes during the Latest Pleistocene and Holocene (21–0 ka) in San Miguel Island, California, U.S.A	102
Mesozooplankton Dynamics in Relation to Environmental Factors and Juvenile Fish in a Subtropical Estuary of the Gulf of Mexico	1038
Natural Coastal Dune-Field Landforms, Plant Communities, and Human Intervention along Buenos Aires Northern Aeolian Barrier	105
Progradation of a Beach Ridge Plain between 5000 and 4000 Years BP Inferred from Luminescence Dating, Coquimbo Bay, Chile	106
$ \begin{tabular}{ll} Using the Presence of Seagrass {\it Posidonia oceanica} to Model the Equilibrium Profile Parameter A of Sandy Beaches in Spain \\ \end{tabular} $	
Luís Aragonés, Isabel López, Yolanda Villacampa, and Francisco J. Navarro-González Determining the Effects of Major Cations (K*, Na*, Ca²*, Mg²*) and pH on Scirpus mariqueter to Assess the Heavy Metal Biotoxicity of a Tidal Flat Ecosystem Longli Dong, Xiaoping Li, Xiaochen Liu, Kun He, and Xue Jiang	1074
The Phenology of Sand Crabs, Lepidopa benedicti (Decapoda: Albuneidae)	109
Development of Shore Platforms along the NW Coast of Italy: The Role of Wind Waves	
	1102
Comparison of Fish Assemblages in Two Adjacent Macrotidal Estuaries Altered by Diking	
Sun-Wan Hwang, Keun-Hyung Choi, and Sun-Do Hwang	1113
First Account of Parmales (Chrysophyceae) in Sediment Trap Samples from the Alfonso Basin, Gulf of California, Mexico	112
Establishment and Biomass Allocation of Black and Red Mangroves: Response to Propagule Flotation Duration and Seedling Light Availability	112
L.T. Simpson, T.Z. Osborne, and I.C. Feller	1120
Sediment Texture and Geochemistry of Beaches between Redi-Vengurla, Sindhudurg, West Coast of India.	
	1138
Nutrient Distribution in Coral Reef Degraded Areas within Sanya Bay, South China Sea	
Jing Guo, Kefu Yu, Yinghui Wang, Daoquan Xu, Xueyong Huang, Meixia Zhao, Hongqiang Yang, and Ruijie Zhang	1148
Longshore and Cross-Shore Morphological Variability of a Berm–Bar System under Low to Moderate Wave Energy	110
Uxía López-Dóriga and Óscar Ferreira	116
Measuring Stable Carbon and Nitrogen Isotopes in <i>Mytilus galloprovincialis</i> to Elucidate the Sources of Organic Matter in Three Different Nearshore Marine Environments	
Mattia Vallefuoco, Renata Migliaccio, Carla D'Argenzio, and Marco Barra	1172
Storm Waves on the East Coast of Korea: 20 Years of Wave Hindcasting	1182
Distribution of Dissolved, Suspended, and Sedimentary Heavy Metals along a Salinized River ContinuumXi Yang and Zhong-Liang Wang	118
Heavy Metal Concentrations Found in Seston and Microplankton from an Impacted Temperate Shallow Estuary along the Southwestern Atlantic Ocean M.D. Fernández Severini, D.M. Villagran, F. Biancalana, A.A. Berasategui, C.V. Spetter, M.N. Tartara, M.C. Menéndez, V.A. Guinder, and J.E. Marcovecchio	1190
Distribution of Phragmites australis Communities with Different Habitat Salinity Jang-Sam Cho, Jeom-Sook Lee, and Jong-Wook Kim	1210
TECHNICAL COMMUNICATIONS	
ULISES: An Open Source Code for Extrinsic Calibrations and Planview Generations in Coastal Video Monitoring Systems	101
	121
Rip Current Measurements at Three South Florida Beaches	122
DISCUSSION AND REPLY	
Discussion of: van Gaalen, J.F.; Tebbens, S.F., and Barton, C.C., 2016. Longshore Sediment Transport Directions and Rates from Northern Maine to	
Tampa Bay, Florida: Literature Compilation and Interpretation. Journal of Coastal Research, 32(6), 1277–1301.	100
Joseph T. Kelley and Duncan M. FitzGerald	123
Reply to: Kelly, J.T. and FitzGerald, D.M., 2017. Discussion of: van Gaalen, J.F.; Tebbens, S.F., and Barton, C.C., 2016. Longshore Sediment Transport Directions and Rates from Northern Maine to Tampa Bay, Florida: Literature Compilation and Interpretation. <i>Journal of Coastal Research</i> , 32(6), 1277–1301	123'
IN MEMORIAM	
	100
Prof. João José Bigarella (1923–2016)	1239 1249
1101. Gaspar Source de Carvanio (1020-2010)	7-57





CERF