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Source: Journal of Coastal Research, 28(3)

Published By: Coastal Education and Research Foundation

URL: https://doi.org/10.2112/1551-5036-28.3.ii

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ERODING DUNES, COAST OF THE NETHERLANDS

Eroding dunes and a steel mill occur side by side on this September 29, 2008 photograph of the Netherlands coast near the town of Heemskerk. The image captures the vulnerability of both the natural and the developed part of the southern North Sea shoreline to coastal erosion, and highlights the need for coastal-protection measures such as large-scale sand nourishments. The steel mill is an exponent of one of Europe's economically most valuable regions. It is located at the groin-delimited entrance to the North Sea Canal. This canal to the port of Amsterdam was dug through the dune belt in the 19th century to directly connect the city and the North Sea. On either side of the canal, coastal dunes extend about 5 km inland from the shore, offering ample protection from storm surges to the adjacent coastal lowland. The frontal dune that marks the seaward side of the dune belt is part of the primary water-defense system of the Netherlands. Its crest height has to meet safety standards defined on the basis of calculated exceedence probabilities, giving it the appearance and function of a sand dike. In an effort to combine this safety function with natural processes, the sand dike is locally allowed to develop into a slightly undulating frontal dune with blowouts that allow inland sand transport by wind. This approach is part of a policy called dynamic dune preservation. Where dune erosion does not form a threat to the country's economic and human interests, measures are taken to add some flexibility to a formerly rigid approach of keeping the coastline in place. On the other hand, the government has reinforced its efforts to hold the sea at bay around coastal towns and at weak links in our chain of dunes. At some of these locations the coast is even prograding a bit, primarily in response to beach and shoreface nourishments. Despite its proximity to the North Sea Canal, no nourishment has taken place at the location shown in the photograph. Here, the coastline has receded at an average rate of about 1 m/yr during the past 50 years. Erosion takes place mainly during extreme events. At Heemskerk, one recent erosive event temporarily exposed 18th-century storm-surge beds that may help to set future safety standards. (Photography by Marcel Bakker, Geological Survey of the Netherlands, Haarlem, The Netherlands).

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An International Forum for the Littoral Sciences

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

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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.

CERF is associated with the Department of Geosciences at Florida Atlantic University (FAU) in Boca Raton, Florida, and one of the main editorial offices for the *Journal of Coastal Research* (JCR) is located at the University. This partnership provides a basis for cooperative investigation, in private and public sectors, of biophysical resources found in open and naturally protected coastal regions, estuaries, large inland bodies of water bounded by shorelines, wetlands, and other coastal environments. Multidisciplinary studies at FAU's Department of Geosciences brings together experts from various fields in remote sensing, geographic information science, spatial ecology, environmental studies, marine biology, coastal geology, geography, and coastal engineering. Scientific investigative efforts by faculty, students, and staff span a wide and diversified range of interrelated topics that are relevant to solutions of today's dynamic problems. It is hoped that these combined attempts to better understand the nature of coastal processes will help forestall what may become contentious issues of tomorrow.

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Dr. Charles W. Finkl is President and Executive Director of the Coastal Education & 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 27 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.

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The International Coastal Symposium (ICS) was originally set up by Per Bruun (deceased) and Charlie Finkl as the official meeting of the Coastal Education & Research Foundation (CERF), with the first meeting 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 next ICS meeting will be held 8–12 April 2013 in Plymouth, United Kingdom (12th ICS hosted by Dr. Gerd Masselink at the University of Plymouth). The ICS deals with all aspects of the coastal zone and attracts more than 600 delegates during each meeting. For more information, please visit www.cerf-jcr.org.

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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.

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