

Coastal Structures and Solutions to Coastal Disasters 2015



Resilient Coastal Communities

Proceedings of the Coastal Structures and Solutions
to Coastal Disasters Joint Conference 2015

Boston, Massachusetts
September 9–11, 2015



ASCE

Edited by
Louise Wallendorf, P.E.



COASTS, OCEANS,
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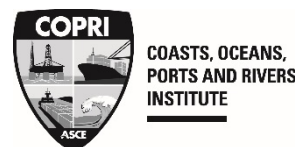
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SPONSORED BY
Coasts, Oceans, Ports, and Rivers Institute of the
American Society of Civil Engineers

EDITED BY
Louise Wallendorf, P.E.
Daniel T. Cox, Ph.D.



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Preface

For many years, the Coastal Structures and Solutions to Coastal Disasters conferences have existed as independent meetings for coastal professionals to exchange ideas on coastal protection and the vulnerability of the coastal infrastructure to coastal storms (hurricanes, tsunamis, and cyclones) and variations in sea level.

We were fortunate to have both of these conferences in the United States in the same year; together they provided attendees a more diverse forum for discussion of coastal development, protection, and resiliency. A truly resilient community requires the active input of scientists and engineers in conjunction with community planners and managers, social scientists, policy makers, and the community itself. Given the public's enjoyment of the coast as residents or visitors, we must all use care and restraint to preserve and enhance our waterfront for future generations.

Coastal Structures and Solutions to Coastal Disasters Joint Conference 2015 is sponsored and organized by the Coastal Structures Committee, Coastal Zone Management Committee, and Solutions to Coastal Disasters Organizing Committee of the Coasts, Oceans, Ports, and Rivers Institute of the American Society of Civil Engineers. Committee members of all COPRI Coastal Committees were actively involved in the development of the conference program and organization of the conference.

The Joint Conference efforts were led by:

Louise Wallendorf, P.E., M.ASCE, Conference Co-Chair
Daniel Cox, Ph.D., Conference Co-Chair
Brian Caufield, P.E., CFM, M.ASCE, Local Chair
Lesley Ewing, Ph.D., P.E., D.CE, M.ASCE, Technical Chair
Christopher Jones, P.E., M.ASCE, Technical Chair

Approximately 260 abstracts were submitted for consideration by the Conference Technical Committee, consisting of over 40 individuals who reviewed abstracts and served as Moderators. The Technical Committee chose 94 for publication in the Coastal Structures and Solutions to Coastal Disasters Proceedings and 26 for publication in the Coastal Structures and Solutions to Coastal Disasters: Tsunamis Proceedings. These 120 papers reflect the combined coastal conferences' full diversity, and are organized into two volumes covering:

Coastal Structures and Solutions to Coastal Disasters:

Sea Level Rise and Climate Change; Natural and Nature-based Designs for Coastal Defense; Wave Run up and Overtopping; Wave Loads on Coastal Structures; Tsunamis; Wave-Soil-Structure Interaction; Armor Stability; Urban Shorelines and Coastal Structures; Coastal Risk and Resilience; Sea Level Rise and Climate Change; Advances in Coastal Modelling; Case Studies; Performance-based Design of Coastal Infrastructure; Field Measurements and Forensic Studies; Hurricanes and Coastal Storms ;Urban Shorelines; Social and Behavioral Aspects of Coastal Disasters; Coastal Hazards Mapping; Coastal Erosion and Shoreline Change; Vulnerability Assessment and Loss Estimation

Coastal Structures and Solutions to Coastal Disasters: Tsunamis

Tsunami Generation & Modelling; Tsunami Measurement & Debris; Tsunami Mitigation; Tsunami Morphology/Sediments; Tsunami Structures

The success of this Conference has relied on the contributions of the authors who submitted their work for our consideration. The preparation of conference abstracts, papers, and presentations is a demanding process, and our sincere thanks go out to all of those who have participated.

We would like to thank the volunteers who reviewed abstracts, papers, moderated sessions, and who served on the Technical Committees for the success of the **Coastal Structures and Solutions to Coastal Disasters Joint Conference 2015**.

This conference proceedings is dedicated to Orville T. Magoon (1928–2016), who had the foresight to encourage/instigate/and inspire us all to develop creative solutions for the world's coasts.

Sincerely and with great appreciation,

Louise Wallendorf, P.E., M.ASCE
Conference Co-Chair
U.S. Naval Academy

Daniel T. Cox, Ph.D.
Conference Co-Chair
Oregon State University

Acknowledgments

We appreciate the enthusiastic support of the conference planning committee members Lesley Ewing, Chris Jones, and Brian Caufield. The metropolitan Boston Community embraced the conference and provided valuable insight to the local community.

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