



Solutions to Coastal Disasters 2011

Proceedings of the
2011 Solutions to
Coastal Disasters
conference

Edited by
Louise A. Wallendorf,
Chris Jones, Lesley Ewing,
and Bob Battalio



**COASTS, OCEANS,
PORTS AND RIVERS
INSTITUTE**

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SOLUTIONS TO COASTAL DISASTERS 2011

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DISASTERS CONFERENCE

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Front Cover Photo: Post-Hurricane Ike view of Bolivar Peninsula, Texas. Hurricane Ike's storm surge and waves reached several feet above the base flood elevation, shoreline and dune erosion were severe, and building damage was widespread. Approximately 4,000 of 6,000 buildings on the Peninsula were destroyed, and most of the remaining 2,000 buildings were damaged. Even buildings elevated above the ground on pile foundations were destroyed or damaged once the wave crests rose above the tops of the foundations. Photo courtesy of FEMA, by Chris Jones.

Foreword

Our coasts provide food, shelter and livelihoods for a large percentage of the world's population of 6.91 billion; our ports are gateways for global commerce and industry. Events on the coast have either direct effects or ripple effects that spread inland. The recent developments in global climate models have highlighted the multitude of links between the land, the ocean, and the atmosphere, where changes to one part of our system reverberate throughout the globe. El Niños in the Pacific seem linked to hurricanes in the Atlantic; storms along the eastern seaboard of the US can cause an increase in oil prices in the mid-West. It is increasingly clear that disasters along the coast reach far beyond the areas directly impacted by the events. Likewise, lessons learned from coastal disasters have relevance far beyond the areas of study. The recent coastal disasters, such as the oil spill in the Gulf of Mexico, and the seismic and tsunami events in Samoa, Chile and Japan, underscore the need for new approaches and solutions that can be applied to coastal areas facing a wide array of potential future disasters. **Solutions to Coastal Disasters 2011** builds upon the information and discussions that developed from the earlier conferences in 2002, 2005, and 2008 and focuses on both the lessons learned and the opportunities to best apply these lessons to avoid or minimize preventable losses.

The conference includes 4 plenary sessions and 24 technical sessions, with over 100 presentations on a broad range of coastal topics. These proceedings include 80 papers that address the challenges and lessons that are being learned along the coastlines of the globe. Coastal managers, planners, scientists, engineers, geologists, economists and oceanographers present useful information for a multi-disciplinary audience including:

- sea-level rise and some of the options for adaptation that are emerging,
- hurricanes, typhoons, and storm surge damages, along with improved forecasting tools and opportunities to reduce damages in the future,
- coastal inundation and flooding,
- shoreline erosion, and ways to study, understand and adapt to shoreline change in the face of rising sea level,
- shoreline management, coastal hazard mitigation,
- vulnerability and adaptability of coastal structures and marine facilities,
- social science of natural disasters,
- tsunamis, modeling efforts, field investigations, preparedness and lessons learned from recent events.

Sustainability and adaptation have taken on an increasing focus for all options related to coastal planning and engineering. **Solutions to Coastal Disasters 2011** encourages greater examination of the physical and environmental linkages on the coast, the vulnerability of our existing coastal communities, and ways to incorporate social solutions into the discussion of coastal disasters.

Acknowledgments

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