Coastal Ocean
Observing Systems

Edited by
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Preface

Whether far or near, the ocean plays a role in everyone's life. The ocean drives weather and climate patterns across the globe, hosts an abundance of wildlife that support fishing industries and provide food for the world, serves as a highway for vessels that deliver everyday materials, and supports economies as a tourism destination. A healthy relationship with the oceans requires that we understand it. One way to understand it is through observing.

In 2004, the Pew Ocean Commission and the U.S. Ocean Commission released reports that stressed the need for expanding coastal ocean observing capabilities and improving collaborations among entities collecting ocean information. The recommendation mirrored similar initiatives in other countries, as well as set the stage for other countries to follow suit. In response to these recommendations, there are now regional, national, and global ocean observing systems designed to provide critical coastal and ocean information for decision-making. *Coastal Ocean Observing Systems: Advances and Syntheses* highlights the system development, scientific discoveries, technology advancements, societal benefits, and partnerships made over the last decade of growth and international support of coastal ocean observing entities.

The contents of this book were originally derived from the 2014 Ocean Sciences Meeting Session #009 entitled, "Scientific and Societal Benefits from Integrated Coastal Ocean Observations and Networked Marine Laboratories." The session included 24 presentations from different academic institutions, private sectors, government agencies, and observing programs. The presentations covered various aspects of the development and value of coastal ocean observing systems and provided a state-of-the-art overview of the science and technology in this field. Some of the book chapters are contributed by the participants and are based on their presentation topics and developments since. Other invited chapters cover lessons learned in building effective coastal observing systems and new technologies; improving, analyzing, and sharing acquired data; applying observed data to advance the science of coastal oceanography; creating interagency and interinstitutional partnerships at regional and international scales; and in developing decision-making products that greatly impact our economy, society, and environment.

The book includes worldwide examples of advancement in coastal observing systems. It features a collection from international academics, managements, and industries on the latest developments in several emerging issues of coastal ocean observing systems, with a focus on reporting scientific and technological knowledge gained and the resulting societal benefits.

The audience for this book may be as diverse as the individuals involved in moving a coastal ocean observing system from an idea to an operational, beneficial entity. Government and academic leaders, scientists, oceanographers, and ocean engineers will find value in the coastal ocean observing system developments,

scientific syntheses, and technology advancements. Resource managers, students, state and federal agencies, and legislators, for example, will also find value in learning more about the societal benefits and users of coastal ocean observing systems and data. The chapters that highlight lessons learned on partnerships, governance, structure, data management, and stakeholder relationships may act as guidance to parties interested in establishing, restructuring, or improving similar systems. Additional readers may include the media and general public interested in marine science, ocean observing, and the coastal environment.

Yonggang Liu, Heather Kerkering, and Robert H. Weisberg
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Each chapter in the book was peer-reviewed to Elsevier standards by two or more anonymous reviewers, selected by the editors in terms of experiences and knowledge of the topic. The editors sincerely thank the 45 reviewers for their valuable volunteer work and insightful comments that helped improve the quality of the book. The following is a list of those anonymous reviewers who agreed to be acknowledged here:

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