

CIRCULATING COPY
Sea Grant Depository

ORES-U-B-92-001 C2

COASTAL NATURAL HAZARDS

*Science,
Engineering,
and Public Policy*

COPIES ONLY

*Edited by James W. Good
and Sandra S. Ridlington*



Oregon Sea Grant
ORES-U-B-92-001

COASTAL NATURAL HAZARDS

*Science,
Engineering,
and Public Policy*

*Edited by James W. Good
and Sandra S. Ridlington*



Oregon Sea Grant
ORES-U-B-92-001

Oregon Sea Grant, Oregon State University, Administrative
Services A402, Corvallis, Oregon 97331-2134

© 1992 by Oregon State University. All rights reserved.

ISBN 1-881826-00-7

CONTENTS

Support v

Preface vi

SCIENCE

PACIFIC NORTHWEST COASTAL EARTHQUAKE, TSUNAMI, AND LANDSLIDE HAZARDS

Seismic Hazards on the Oregon Coast 3

Ian Madin

Seismic Hazards on the Oregon Coast—A Response 28

Richard W. Rinne

Comments on Paper by Ian Madin 32

Rainmar Bartl

Catastrophic Coastal Hazards in the Cascadia Margin U.S.
Pacific Northwest 33

Curt Peterson and George Priest

COASTAL PROCESSES AND HAZARDS

Ocean Processes and Hazards along the Oregon Coast 38

Paul D. Komar

Comments on Paul Komar's "Coastal Zone Processes
and Hazards" 74

John Beaulieu

ENGINEERING

SHORE PROTECTION AND ENGINEERING

Shore Protection and Engineering with Special Reference to
the Oregon Coast 79

Nicholas C. Kraus and William G. McDougal

A Discussion of "Shore Protection and Engineering with Special
Reference to the Oregon Coast" 101

Spencer M. Rogers, Jr.

Responding to Oregon's Shoreline Erosion Hazards: Some Lessons
Learned from California 104

Gary B. Griggs

Shore Protection and Engineering: A Local Perspective 117

Matt Spangler

PUBLIC POLICY

COASTAL HAZARDS POLICY ISSUES ON THE WEST COAST

Recent Legal Developments in Coastal Natural Hazards Policy 121

Richard G. Hildreth

California's Coastal Hazards Policies: A Critique 127

Gary B. Griggs, James E. Pepper, and Martha E. Jordan

Washington State Coastal Hazard Initiatives 139

Douglas J. Canning

Ocean Shore Protection Policy and Practices in Oregon 145

James W. Good

SUPPORT



This book is funded by the National Oceanic and Atmospheric Administration, through Oregon Sea Grant (grant number NA89AA-D-SG108). The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its subagencies.

PREFACE

In early October 1991, more than 160 coastal geologists, oceanographers, engineers, planners, resource managers, and citizens gathered in Newport, Oregon, to learn about recent research on coastal natural hazards and discuss the implications for coastal development and management. At that conference, "Coastal Natural Hazards: Science, Engineering, and Public Policy," distinguished scientists, engineers, and policy analysts reviewed the state of knowledge in their specialties. We learned about the effects of periodic El Niños on beach and shore erosion and about recent research on factors that control sea cliff erosion. Scientists presented evidence for periodic great subduction zone earthquakes that have occurred along the Pacific Northwest coast and speculated on when the next quake might strike. We were introduced to planning and engineering approaches to hazard mitigation on the West

Coast and learned about the successes and shortcomings of public policies designed to deal with development in hazardous areas.

This book is a collection of the principal papers delivered at that conference, along with critiques and supplementary remarks of panelists. For the most part, the papers are written in nontechnical language, with ample illustrations. As such, they serve as useful primers for the newcomer to the subject, whether a local official, property owner, realtor, or coastal visitor. Together, the papers should also be a useful reference for the policymaker, emergency manager, professional planner, beach and coastal manager, academic, and student. And for long-time observers of the coastal scene, the papers will confirm many of their hunches about the workings of our dynamic Pacific Northwest coastline.