# The Role of the Oceans in the 21st Century

Proceedings

The Law of the Sea Institute Twenty-Seventh Annual Conference

co-sponsored by Korea Ocean Research and Development Institute

Seoul, Korea July 13-16, 1993

> Edited by Seoung-Yong Hong Edward L. Miles Choon-ho Park

Published by The Law of the Sea Institute William S. Richardson School of Law University of Hawaii, Honolulu The Law of the Sea Institute is housed and sponsored by the William S. Richardson School of Law, University of Hawaii.

Copyright c 1995 by the Law of the Sea Institute, University of Hawaii. All rights reserved. Manufactured in the United States of America.

International Standard Book Number 0-911189-30-0

Library of Congress Cataloging-in-Publication Data

Law of the Sea Institute. Conference (27th : 1993 : Seoul, Korea) The role of the ocean in the 21st century : proceedings, the Law of the Sea Institute, Twenty-Seventh Annual Conference, Seoul, Korea, July 13-16, 1993 / co-sponsored by Korea Ocean Research and Development Institute : edited by Seoung-Yong Hong, Edward L. Miles, Choon-ho Park.

p. cm. Includes index. ISBN 0-911189-30-0 1. Marine resources--Congresses. I. Hong, Seoung-Yong. II. Miles, Edward L. III. Park, Choon-ho, 1930- IV. Han 'guk Haeyang Kaebal Yon 'guso. V. Title. GC1001.L38 1993 333.91'6415--dc20 95-

95-23059 CIP

This book may be ordered from:

The Law of the Sea Institute William S. Richardson School of Law University of Hawaii at Manoa 2515 Dole Street, Room 208 Honolulu, HI 96822 Phone (808) 956-6750 Fax (808) 956-3307 email: scott@uh.unix.uhcc.hawaii.edu

## TABLE OF CONTENTS

Acknowledgements       x         Dedication       xi         LSI Board and Staff       xiii         KORDI/LSI Secretariat       xiv	
OPENING CEREMONIES	
Welcoming Remarks Edward L. Miles	
Introduction to Keynote Speech Choon-ho Park	
New Challenges to the International Order of the Sea Hisashi Owada	
PANEL I:	
OCEAN POLICY AS AN ELEMENT OF NATIONAL POLICY . 19	
Introduction Robert Friedheim	
Marine Policy in the Republic of Korea Seoung-Yong Hong	
A Global Environmental Perspective	
Timothy Hennessey	
Japan's Ocean Policy in the Post-Cold War Era: Balancing Developmental and Environmental Needs,	
Domestic and International Interests	
<i>Tsuneo Akaha</i>	
Edward L. Miles 115	
Commentary Artemy Saguirian	
Discussion	
PANEL II:	
COASTAL ZONE UTILIZATION	
Introduction Edward L. Miles	
Advances in Coastal Ocean Space Utilization: Artificial Islands and Floating Cities	
Takeo Kondo. Nobuo Hirai, and Akihide Tada	

State-Level Initiatives in Ocean Management	
in the United States	
Marc J. Hershman 1	49
Ocean Management Initiatives at the State Level	
in the United States	
Tara Thompson and Marc J. Hershman 1	58
A Perspective on Recent Developments that Could Affect	
The Nature of Ocean Governance Regimes	
Robert W. Knecht 1	77
Commentary	
<i>R. E. Waterman</i> 1	91
Commentary	
<i>Hyung-Tack Huh</i> 1	99
Discussion 2	202

PA	NEI	III:	

NEW OCEAN INDUSTRIES	1
Introduction	
John Huff 213	3
Ocean Frontiers Initiative	
in the 21st Century	
Gary Noland	5
Vietnamese Petroleum Law	
and Assistance from Asian Countries	
Yoshihiko Miwa 237	7
New Developing Areas in Traditional Ocean Industry:	
Shipping and Fisheries	
Jon Joon-Soo	1
Commentary: New Ocean Industries:	
A Perspective from the Law of the Sea	
Alfred H. A. Soons 298	3
Commentary	
Alastair Couper	3
Discussion	5
LUNCHEON SPEECH	2
The Future of The UN Law of the Sea Convention	1
and Maintenance of Legal Order and Peace	
in the Oceans in the 21st Century	
Laor K. Kolossovsky 321	

PANEL IV:
NEW AND EMERGENT HARD OCEAN MINERALS 327
Introduction
James M. Broadus
Manganese Nodule Price Trends: Dim Prospects
for Commercialization of Deep Seabed Mining
Porter Hoagland
Deep Seabed Mining
An International and Multidisciplinary Overview of
Exploration and Technology Development
Jan Magne Markussen 355
New and Emergent Hard Ocean Minerals: China
Jinsen Yang
Commentary
Mamoru Koga
Commentary
Hyohun Shin
Discussion
PANEL V:
THE FUTURE OF OCEANIC OIL AND GAS
Introduction
Maria Teresa Infante
Problem on The United States Continental Shelf
Measuring the Environmental "Effectiveness" of
the Outer Continental Shelf Act (OCSA)
Barry Hart Dubner
Russian Continental Shelf:
Current Legislative Developments
Levan Imnadze
The Future of Oceanic Oil and Gas:
An Australian View
P. A. Symonds and J. B. Willcox 421
The Future of Oceanic Oil and Gas:
The Case of Indonesia
Wijarso 453
Commentary
Jin-Hyun Paik
Discussion

vii

PANEL VI:	
CONTRIBUTIONS OF OCEANS RESOURCES	
TO THE EAST ASIAN ECONOMY	473
Introduction	
Choon-ho Park	475
Evolution of Pollock Fisheries Management	
in the North Pacific and East Asian Economies	
David Fluharty	477
The Status of Fisheries in Korea	
with Emphasis on Distant-Water Operations	
Seong-Kwae Park	517
Management of Highly Migratory Species	
in the Central Western Pacific	526
Tatsuo Saito	230
Commentary David Freestone	551
Commentary	334
Eity Agoes	560
Discussion	
Discussion	504
LUNCHEON SPEECH	569
Japan's Maritime Policy	507
Shun ji Yanai	571
PANEL VII:	
ECONOMIC CONTRIBUTIONS	
OF ENVIRONMENTAL USE OF THE OCEAN	593
Introduction	
Douglas M. Johnston	595
A System of Sustainable Coast Fisheries in Japan	
Teruji Sakiyama	597
Economic Contributions of Environmental Uses	
of the Oceans: Aquaculture, Energy, Pollution,	
and Ocean Minerals	101
John E. Bardach	621
Sustainable Development and the Oceans:	
Navigating Our Way from Rio	(2)
Arthur J. Hanson	030
Commentary Sang Don Lee	660
Commentary	000
Philomène A. Verlaan	662
Discussion	
	000

 $\hat{a}_{i3}$ 

viii

JOINT CONFERENCE WITH KOREA SEA LANES OF	
COMMUNICATIONS (SLOC): POST-COLD WAR ERA	
AND SLOC SECURITY IN EAST ASIA	573
Introduction	
Soo-Gil Park	575
Post-Cold War Strategic Environment and	
SLOC Security in the Western Pacific	
Dalchoong Kim	576
Current Status of Indonesia's	
Archipelagic Jurisdiction	
Barbara Kwiatkowska	584
The 1992 Territorial Sea Law of China	
Wang Liyu	714
Commentary	
Etty Agoes	738
Commentary	
Commentary Joseph Morgan	742
Commentary	
B. A. Hamzah	745
Discussion	748
LIST OF PARTICIPANTS	753
INDEX	761

ix

## **Dedication to James M. Broadus**

In September 1994, the United States ocean policy community lost one of its brightest stars in Jim Broadus, who perished suddenly and shockingly, off the coast of Maui, Hawaii. Broadus was far and away this community's most articulate spokesman for the "economic" use of ocean resources. Often the skeptic, but always cordial and somewhat wry, Broadus' ability was so great that his death impoverishes the world ocean policy community, along with that of the United States.

At Woods Hole's Marine Policy Center (MPC), Broadus singlehandedly shifted the disciplinary emphases of policy research from anthropology and political science to economics and law. This reorientation was resisted at first, but the brilliance of this move became apparent when it was viewed in terms of the potential for MPC's growth and its acceptance within the broader community of natural scientists in Woods Hole. Under his guidance, MPC emerged as one of the leading ocean policy research centers in the world. When Seoung-Yong Hong designed his program in marine policy at the Korea Ocean Research and Development Institute (KORDI), it was modelled explicitly after MPC.

Broadus was often one step ahead of the mainstream in the marine policy field, perceiving deep seabed mining as an illusion, working with the Soviet Academy of Sciences (IMEMO) on environmental security issues *before* the Berlin Wall was razed, building research programs with Andy Solow and other colleagues to focus on the policy implication of biological diversity and global warming-induced sea level rise, estimating worldwide demand for oceanographic research vessels, analyzing the economic structure and performance of the markets for high-technology marine electronics, studying the "effectiveness" of international agreements in controlling land-based sources of marine pollution, among many other accomplishments.

Broadus was, at heart, an "internationalist" in the best sense of the term, although he would have been amused to hear himself described as such. In his career, he established close working relationships between MPC and ocean policy centers in England, Russia, Japan, Korea, and China and organized projects with marine policy colleagues in Ecuador, Colombia, Jordan, Norway, and many other countries.

This volume addresses the role of the oceans in the 21st century. In this memorial, we must, with deepest regret, acknowledge that there will be no Jim Broadus to help shape this role. Those of us who intend to influence the development of ocean policy now bear a significantly heavier burden. We can, however, be thankful that Broadus has left us a legacy of his taste for internationalism, his critical approach to problem-solving, and his knack for discerning early on the central issues that must be addressed.

Porter Hoagland Marine Policy Center Woods Hole Oceanographic Institution

Edward Miles School of Marine Affairs University of Washington

### 1993 LSI Executive Board

R. P. Anand School of International Studies Jawaharlal Nehru University New Delhi

Frank Boas Honolulu

Alastair Couper Department of Maritime Studies University of Wales College of Cardiff

Jeremy Harrison William S. Richardson School of Law University of Hawaii

John Huff Oceaneering International, Inc. Houston

Maria Teresa Infante Institute of International Studies University of Chile

Anatoly Kolodkin International Maritime Law Assn. Moscow

Dale Krause Marine Science Institute Univ. of California, Santa Barbara

Mochtar Kusuma-Atmadja Mochtar, Karuwin & Komar Jakarta Philip J. Major Ministry of Agriculture and Fisheries Wellington

Thomas A. Mensah London

Edward L. Miles School of Marine Affairs University of Washington

Satya Nandan New York

Bernard Oxman School of Law University of Miami

Peter H. Pearse Faculty of Forestry University of British Columbia

Louis B. Sohn National Law Center George Washington University

Alfred H. A. Soons Netherlands Institute for the Law of the Sea University of Utrecht

Judith Swan Oceans Institute of Canada Halifax

Kunio Yonezawa Nippon Suisan Kaisha, Ltd. Tokyo

#### 1993 LSI Staff

Scott Allen, Acting Director Carol Stimson, Administrator/Editor William Boryk, Publications Specialist