

Contents

Foreword	vii
Preface	ix
 Physical Dynamics	
The Physical Oceanography of the Bering Sea <i>Phyllis J. Stabeno, James D. Schumacher, and Kiyotaka Ohtani</i>	1
An Update on the Climatology and Sea Ice of the Bering Sea <i>Henry J. Niebauer, Nicholas A. Bond, Lev P. Yakunin, and Vladimir V. Plotnikov</i>	29
Thermohaline Structure and Water Masses in the Bering Sea <i>Vladimir A. Luchin, Vladimir A. Menovshchikov, Vladimir M. Lavrentiev, and Ronald K. Reed</i>	61
Bering Sea Tides <i>Zygmunt Kowalik</i>	93
Thermal Stratification and Mixing on the Bering Sea Shelf <i>James E. Overland, Sigrid A. Salo, Lakshmi H. Kantha, and Carol Ann Clayson</i>	129
Variability and Role of the Physical Environment in the Bering Sea Ecosystem <i>James D. Schumacher and Vera Alexander</i>	147
Hydrography of Western Bering Sea Shelf Water <i>Gennadiy V. Khen</i>	161
The Aleutian North Slope Current <i>Ronald K. Reed and Phyllis J. Stabeno</i>	177
Physical Environment Around the Pribilof Islands <i>Phyllis J. Stabeno, James D. Schumacher, Sigrid A. Salo, George L. Hunt Jr., and Mikhail Flint</i>	193

Chemical Distributions and Dynamics

Summary of Chemical Distributions and Dynamics in the Bering Sea

Terry E. Whitledge and Vladimir A. Luchin 217

Mesoscale Anticyclonic Eddies at the Shelf Break and Their Impact on the Formation of Hydrochemical Structures of the Bering Sea

Victor V. Sapozhnikov 251

Organic Matter of the Bering Sea

Alina Ivanovna Agatova, Natalya Vladimirovna Arzhanova, and Nadezhda Ivanovna Torgunova 261

Silica in Bering Sea Deep and Bottom Water

Lawrence K. Coachman, Terry E. Whitledge, and John J. Goering 285

Variability in the Components of the Carbonate System and Dynamics of Inorganic Carbon in the Western Bering Sea in Summer

Alexander P. Nedashkovskiy and Victor V. Sapozhnikov 311

Effect of Nutrients on Phytoplankton Size in the Bering Sea Basin

Akihiro Shiimoto 323

Seasonal Variation in the Process of Marine Organism Production Based on Downward Fluxes of Organic Substances in the Bering Sea

Yoshiaki Maita, Mitsuru Yanada, and Kozo Takahashi 341

Trends in the Distribution of Organic Nitrogen, Ammonium, and Urea in the Bering Sea

Victor V. Sapozhnikov, Victor L. Zubarevich, and Natalya V. Mordasova 353

Paleoceanographic Changes and Present Environment of the Bering Sea

Kozo Takahashi 365

Biological Dynamics

Summary of Biology and Ecosystem Dynamics in the Bering Sea

Thomas R. Loughlin, Irina N. Sukhanova, Elizabeth H. Sinclair, and Richard C. Ferrero 387

Modeling and Management of the Bering Sea Ecosystem

Robert C. Francis, Kerim Aydin, Richard L. Merrick, and Stephen Bollens 409

Seasonal Sea Ice Variability and the Bering Sea Ecosystem <i>Tina Wyllie-Echeverria and Kiyotaka Ohtani</i>	435
Spatial Distribution and Temporal Variability of Phytoplankton in the Bering Sea <i>Irina N. Sukhanova, Halina J. Semina, and Mikhail V. Venttsel</i>	453
Distribution and Ecology of Mesopelagic Fishes and Cephalopods <i>Elizabeth H. Sinclair, Andrey A. Balanov, Tsunemi Kubodera, Vladimir I. Radchenko, and Yury A. Fedorets</i>	485
Forage Fishes in the Bering Sea: Distribution, Species Associations, and Biomass Trends <i>Richard D. Brodeur, Matthew T. Wilson, Gary E. Walters, and Igor V. Melnikov</i>	509
Ecology of Groundfishes in the Eastern Bering Sea, with Emphasis on Food Habits <i>Kei-ichi Mito, Akira Nishimura, and Takashi Yanagimoto</i>	537
Population Ecology and Structural Dynamics of Walleye Pollock (<i>Theragra chalcogramma</i>) <i>Kevin M. Bailey, Dennis M. Powers, Joseph M. Quattro, Gary Villa, Akira Nishimura, James J. Traynor, and Gary Walters</i>	581
Use of a Surface-Current Model and Satellite Telemetry to Assess Marine Mammal Movements in the Bering Sea <i>Thomas R. Loughlin, W. James Ingraham Jr., Norihisa Baba, and Bruce W. Robson</i>	615
Marine Bird Populations and Carrying Capacity of the Eastern Bering Sea <i>George L. Hunt Jr. and G. Vernon Byrd Jr.</i>	631
Seabirds of the Western Bering Sea <i>Vyacheslav P. Shuntov</i>	651
Synopsis of Major Research Programs	
Interdisciplinary Studies of the Bering Sea <i>Vera Alexander</i>	683
Water over the Bridge: A Summing Up of the Contributions of the ISHTAR Project in the Northern Bering and Chukchi Seas <i>C. Peter McRoy</i>	687

PROBES: Processes and Resources of the Eastern Bering Sea Shelf	
<i>Donald W. Hood</i>	697
The BERPAC Project: Development and Overview of Ecological Investigations in the Bering and Chukchi Seas	
<i>Alla V. Tsyban</i>	713
Bering Sea FOCI	
<i>S. Allen Macklin</i>	733
Summary of <i>Oshoro Maru</i> Cruises in the Eastern Bering Sea	
<i>Kiyotaka Ohtani</i>	753
United States Oil and Gas Exploration in the Bering Sea	
<i>Cleveland J. Cowles, Jerry L. Imm, and Jeff Walker</i>	757
Summary of TINRO Ecosystem Investigations in the Bering Sea	
<i>Vyacheslav P. Shuntov and Vladimir I. Radchenko</i>	771
Summary, Conclusions, and Recommendations	
<i>Alan M. Springer</i>	777
Appendix: Principal Scientific Questions on Bering Sea Ecosystem Function and Productivity	
.....	801
Index	807