

Preface

The Southern California Bight (SCB) encompasses the body of water lying between Point Conception on the Santa Barbara County coast and a point just south of the United States–Mexico border. The mild Mediterranean climate, broad sandy beaches, and rocky shores provide an ideal environment for a water-oriented playground used by millions of people who inhabit the shores of the SCB. However, the recreational and commercial fishing elements in the SCB are often in conflict with other elements, including the on-shore industrial complex, offshore oil production, operations of one of the world's busiest seaports (Los Angeles–Long Beach harbors), and its use as receiving waters for municipal wastes.

Prior to World War II, oceanographic research in the SCB was largely exploratory and descriptive in nature. It was not until the mid-1950s that integrated studies in oceanography in the SCB were undertaken. The first of these large-scale studies was funded by the California Water Pollution Control Board (now the California Water Quality Control Board) during the period 1956–1961. This study focused on those areas of the SCB that were polluted, were expected to become polluted, and were expected to remain unpolluted. Two later studies were funded by the Bureau of Land Management (now the Minerals Management Service, MMS): the Baseline Study (1975–1976) and the Benchmark Study

(1976–1977). These two studies were primarily concerned with obtaining background data from areas where offshore drilling for oil may occur in the future as well as areas that serve as reference sites. The data generated from these studies constituted an important source of information for this book.

Synthesis of the accumulated oceanographic data of the SCB is a monumental task, and until publication of this compendium, only two other such works had been completed. In 1960, K. O. Emery wrote *The Sea off Southern California*, which integrated the physical, chemical, and geological knowledge of the SCB. The staff of the Southern California Coastal Water Research Project (SCCWRP) wrote the second synthesis, *Ecology of the Southern California Bight: Implication for Water Quality Management*. This synthesis focused on waste disposal, especially municipal wastes, in the SCB.

The impetus for the present volume grew out of public workshops sponsored by MMS in 1982. A report issued by MMS on the workshops stressed the need for a comprehensive review of the oceanography of the SCB and recommended that the study should emphasize the ecology of the area. *Ecology of the Southern California Bight: A Synthesis and Interpretation* is the result of that recommendation.

The primary goal of this work can best be summarized by a statement in the contract between MMS and the Ocean Studies Institute:

To produce a comprehensive hard-cover text that will make a significant contribution to the understanding of marine ecological processes within the SCB. By supporting the publication of a book written by a team of recognized experts in marine ecology and oceanography, MMS hopes to obtain a highly credible reference that will benefit all scientists as well as the environmental staff of MMS.

The contract specified that the text was to be "a synthesis and interpretation of existing data on the ecology of the SCB" and that "historical data and recent findings need to be thoroughly reviewed and then applied to new descriptions of how the marine ecosystem functions, both naturally and under the influence of human activities."

This book is written with both the advanced undergraduate and graduate student in mind, as well as the professional in need of a reference source.

The editors could not have completed this volume without the assistance and cooperation of many people. We appreciate the time and effort that each of the contributing authors has given to this project. We especially thank Dr. Donald W. Hood, author of the chapter "Ecosystem Interrelationships." He brought to the task not only his years of experience but also the expertise he acquired as co-editor of two similar volumes, *The Eastern Bering Sea Shelf: Oceanography and Resources*, published in 1981, and *The Gulf of Alaska*, published in 1987.

Many scientists served as reviewers, providing an invaluable service to the editors and authors throughout the writing of this book. A Quality Review Board was selected to advise and assist in producing the compendium. The board met with the authors at the outset to discuss the overall coverage of the book to be written. Then, after completion of the initial draft, the board members met again with the authors to offer suggestions for improvement. After reading the final draft, they met for the last time with the editors to give additional suggestions before the manuscript was submitted to MMS and subsequently to University of California Press. We, the editors,

wish to thank these board members for their help and encouragement:

- Dr. Donald Boesch, Director, Center for Environmental and Estuarine Studies, University of Maryland, Cambridge, Maryland
- Dr. Alfred W. Ebeling, Biological Sciences, University of California, Santa Barbara
- Dr. Donn Gorsline, John and Doris Zinsmeyer Chair in Marine Studies, University of Southern California, Los Angeles
- Dr. Isaac Kaplan, Geology and Geochemistry, University of California, Los Angeles
- Dr. Paul Smith, Fishery Biologist, National Oceanic and Atmospheric Administration, Southwest Fisheries Center, La Jolla, California
- Dr. Reuben Lasker, Chief, Coastal Fisheries Resources Division, National Oceanic and Atmospheric Administration, Southwest Fisheries Center, La Jolla, California. (Dr. Lasker served as a member until his death in March 1988.)

Other scientists acted as peer reviewers for chapters in their areas of expertise. They include

- Dr. Alice Alldredge, Department of Biological Sciences, University of California, Santa Barbara (zooplankton)
- Dr. Farooq Azam, Marine Research Biology Department, University of California, San Diego (microbiology)
- Dr. Kenneth T. Briggs, University of California, Davis (birds)
- Dr. Roy Carpenter, School of Oceanography, University of Washington, Seattle (chemical oceanography)
- Dr. Daniel Costa, Institute of Marine Sciences, University of California, Santa Cruz (mammals)
- Dr. Gilbert F. Jones, Department of Biological Sciences, University of Southern California, Los Angeles (benthic invertebrates)
- Dr. Ronald Kolpack, Marine Processes Research, West Covina, California (physical oceanography)
- Dr. Mark Littler, Curator of Botany, National Museum of Natural History, Smith-

sonian Institution, Washington, D.C. (benthic macrophytes)

Dr. Alan J. Mearns, Ecologist, National Oceanic and Atmospheric Administration, Seattle (human inputs)

Dr. David Menzel, Director, Skidaway Institute of Oceanography, Savannah, Georgia (ecosystem interrelationships)

Dr. Raymond Riznyk, Department of Natural Resources, Alaska Pacific University, Anchorage, Alaska (phytoplankton)

Dr. Robert F. Rooney, Department of Economics, California State University, Long Beach (world shipping in human inputs)

Dr. Maynard Silva, Assistant Executive Director, Guadalupe Community Redevelopment Agency, Guadalupe, California (governance)

Dr. John Stephens, Department of Biology, Occidental College, Los Angeles (fish)

Dr. Peter M. Williams, Research Chemist, University of California at San Diego and Scripps Institution of Oceanography (chemical oceanography)

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