

THE OFFICIAL MAGAZINE OF THE OCEANOGRAPHY SOCIETY

Oceanography

CITATION

Fogarty, M.J. 2008. Review of *Oceans Past: Management Insights from the History of Marine Animal Populations*, edited by D.J. Starkey, P. Holm, and M. Barnard. *Oceanography* 21(4):206–208, <http://dx.doi.org/10.5670/oceanog.2008.27>.

COPYRIGHT

This article has been published in *Oceanography*, Volume 21, Number 4, a quarterly journal of The Oceanography Society. Copyright 2008 by The Oceanography Society. All rights reserved.

USAGE

Permission is granted to copy this article for use in teaching and research. Republication, systematic reproduction, or collective redistribution of any portion of this article by photocopy machine, reposting, or other means is permitted only with the approval of The Oceanography Society. Send all correspondence to: info@tos.org or The Oceanography Society, PO Box 1931, Rockville, MD 20849-1931, USA.

obsolete but because little has changed in those areas, while new areas have developed. He therefore recommends owning and reading both editions. Indeed, that is necessary for a full overview of the field. Only in the first edition are there chapters on bacterial production, bacterial energetics and efficiency, food webs, top-down effects, and limiting inorganic nutrients.

Because textbooks dealing specifically with modern marine microbial ecology have not yet been published, Kirchman's first edition appears to have found some use in graduate courses in oceanography and marine biology. Recognizing that application, the writers have included boxes throughout the second edition in which terminology is defined and

concepts explained in simple language. Those additions are only minimally helpful, and they do not make it a textbook. The book is highly detailed and somewhat redundant, owing to the many authors, and it is not organized in a helpful way for a student. Important subjects are covered only in the first edition, so the student needs to read most of the 1100 pages in the two books. Let us hope that the race is on to publish the first real textbook for marine microbial ecology. However, for the biological oceanographer, who already understands the jargon, this book and its predecessor are valuable, critical overviews of the state of marine microbial ecology. They are the best current analysis of a growing and important discipline.

Lawrence R. Pomeroy (lpomeroy@uga.edu) is Alumni Foundation Professor Emeritus, Odum School of Ecology, University of Georgia, Athens, GA, USA.

REFERENCES

- Fuhrman, J.A., and F. Azam. 1982. Thymidine incorporation as a measure of heterotrophic bacterioplankton production in marine surface waters: Evaluation and field results. *Marine Biology* 66:109–120.
- Hobbie, J.E., R.J. Daley, and S. Jasper. 1977. Use of nucleopore filters for counting bacteria by fluorescent microscopy. *Applied and Environmental Microbiology* 33:1,225–1,228.
- Williams, P.J. leB., and N.W. Jenkinson. 1982. A transportable microprocessor-controlled precise Winkler titrator suitable for field station and shipboard use. *Limnology and Oceanography* 27:576–584.

Oceans Past: Management Insights from the History of Marine Animal Populations

Edited by David J. Starkey, Poul Holm, and Michaela Barnard, Earthscan Research Editions, 2007, 223 pages, ISBN 978-1-84407-527-0, Hardcover, \$127.00.

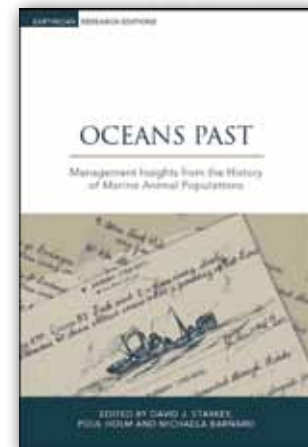
REVIEWED BY MICHAEL J. FOGARTY

History teaches us that men and nations behave wisely once they have exhausted all other alternatives.

—Abba Eban, Israeli Foreign Minister, London, 1970

If we could be transported back through time, would we recognize the structure of ocean ecosystems through the prism of their current state? What have we lost and to what degree might we be able to

restore their potential? Historical narratives and descriptions of both natural history and the abundance of marine animals paint a vivid (if fragmented) picture of ocean ecosystems that extend back over millennia. Centuries-old chronicles of early explorers traveling to the New World include numerous tales of the untold bounty of the seas. Historians recognize, however, that it is necessary to treat such descriptions with some care. Were some written to attract investors in fishing and trading enterprises, others to attract settlers to uncharted lands? The History of Marine Animal Populations (HMAP) project of the Census of Marine Life (CoML) program seeks to complement anecdotal reports and historical records with careful analysis of sources



such as logbooks of whaling and fishing vessels, titling or tax archives, and the paleo-ecological record to provide more quantitative estimates of marine animal populations of the past. To establish appropriate restoration goals, it is essential to determine the ocean's potential productivity. This analysis would permit establishment of realistic baselines for comparison with existing

states of nature. Only then can we begin to assess whether appropriate goals are being set. The danger is in setting the bar too low by underestimating the production potential of the seas based on recent rather than historical levels.

Oceans Past: Management Insights from the History of Marine Animal Populations assembles ten case studies under the HMAP banner—five dealing with fish and invertebrate fisheries, three treating whale populations and whaling, one examining evidence for the origins of a now common intertidal species in North America, and one providing an international political context for the development of fishery management strategies in the mid twentieth century. In an informative and engaging introductory chapter, Jesse Ausubel lays out the context and rationale for CoML (and HMAP in particular). Editors David Starkey, Poul Holm, and Michaela Bernard then nicely introduce the themes and chapters to follow. Paul Waggoner aptly closes the volume with summary comments in his Afterword.

Although the volume deals with a diverse set of issues, the hallmark of each contribution is careful detective work, often involving multiple lines of evidence. Several general themes can be found in these pages, including the broad impact of human activities on marine ecosystems, the crucial role of human motivations and values in resource use and protection, and the relevance of patterns of expansion and contraction of populations and fisheries in space and time.

Unintended consequences of human activities in the ocean with important ecological effects include the introduction of nonnative species through

shipping. In her chapter, April Blakeslee traces the origins of the common periwinkle (*Littorina littorea*) in coastal regions of the Northwest Atlantic and convincingly argues it was introduced from Europe. Loren McClenachan shows that the rise and fall of the Florida sponge industry not only involved a clash of cultures and technologies but also precipitated a fundamental change in the dominance of microbial communities as the filtration role of sponges was adversely affected by overfishing; resulting disease outbreaks further degraded sponge fields and coral reef systems.

This volume amply demonstrates the power of detailed analysis of fishing and whaling logs and archival voyage records to document spatial and temporal impacts of harvesting. Stefan Claesson demonstrates the power of new data-visualization tools applied to old sources, including maps of New England fishing grounds documented by government researchers at the close of the nineteenth century. The chapter by John Bannister and colleagues charts the global expansion and ultimate contraction of the sperm-whale fishery based on historical archives and whaling logs. Elizabeth Josephson and coauthors examine voyage records assembled by the pioneering oceanographer Matthew Fontaine Maury (who used vessel logs not only to map ocean currents but also to track whale migrations) to trace the rapid decline of the North Pacific right whale population as discrete whaling grounds were sequentially depleted. In their chapter, Tim Smith and colleagues nicely illustrate the need for and the value of critical analysis of whaling records in resolving an apparent paradox in the course of the sperm-whale fishery in the North Pacific.

UPCOMING BOOK REVIEWS

An Introduction to Ocean Turbulence by S.A. Thorpe, Cambridge University Press, 240 pages

Chasing Science at Sea: Racing Hurricanes, Stalking Sharks, and Living Undersea with Ocean Experts by Ellen Prager, University of Chicago Press, 200 pages

Chemical Oceanography and the Marine Carbon Cycle by Steven R. Emerson and John L. Hedges, Cambridge University Press, 453 pages

The Dynamics of Coastal Models by Clifford J. Hearn, Cambridge University Press, 488 pages

Essentials of Oceanography, Fifth Edition by Tom Garrison, Brooks/Cole Cengage Learning, 434 pages

Tides of History: Ocean Science and Her Majesty's Navy by Michael S. Reidy, University of Chicago Press, 392 pages

Inferences on population trajectories are not limited to logbook records. Glenn Jones shows how the information content of historical restaurant menus can be cleverly exploited to infer population change by examining carefully adjusted price information in relation to supply and demand. Julia Lajus reminds us that the field of historical ecology advanced in HMAP initiatives throughout the world has its roots in the developmental work of scientists in Russia and in Scandinavia who carefully sifted through historical sources to better understand changes in fishery resources in the mid nineteenth century.

Underlying every aspect of the human

appropriation of marine ecosystem goods and services are fundamental motivations and values. Just as conservation values held by different ethnic groups involved in the Florida sponge fishery recounted by McClanachan had important implications for sustainability, Matthew McKenzie shows that changes in values and, in particular, loss of a vital connection to the resource were at the heart of the destruction of river herring populations in Massachusetts. Subsistence fisheries providing ecosystem services that touched many aspects of daily life in colonial America were supplanted by a commodity-driven view of river herring as bait for fisheries for other species, and so a deep conservation

ethic was lost. Carmel Finley traces the development of the concept of maximum sustainable yield in the mid twentieth century and attributes its advancement by the United States to broader geopolitical motives.

The chapters in this volume illustrate different stages of development in the application of the HMAP research strategy, some establishing proof of concept with further work to follow, others providing more complete analyses of specific problems. The opportunities to be found in thorough analysis of historical information from very diverse sources are evident throughout. Although the reader does derive a good sense of relative changes in the marine

animal populations examined for the period of record, I think it is fair to say that management lessons to be extracted from these case studies are quite general and often implicit rather than explicit. The tasks of linking these historical reconstructions with contemporary estimates of abundance and of deriving more specific insights into marine resource management remain a challenge for future work.

Michael J. Fogarty (mfogarty@mercury.wh.who.edu) is Senior Scientist, Ecosystem Assessment Program, Northeast Fisheries Science Center, National Oceanic and Atmospheric Administration, Woods Hole, MA, USA.

Climate Change A Multidisciplinary Approach (Second Edition)

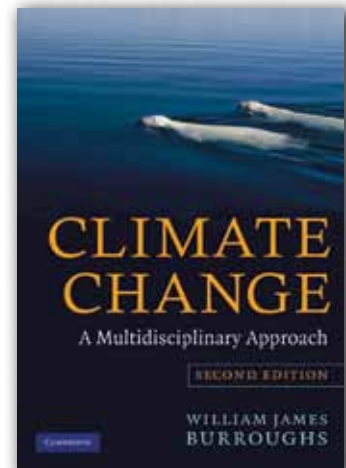
By William James Burroughs.
Cambridge University Press, 2007,
378 pages, ISBN 978-0-52169-033-1,
Softcover, \$55.00 US.

REVIEWED BY RAPHAEL WUST

Climate Change: A Multidisciplinary Approach (2nd Edition) is a thorough compilation of information concerning our current knowledge of climate changes and their implications for society. This book builds upon an earlier volume of the same name also written by William James Burroughs and published in 2001. Since the earlier publication, an enormous array of new information has come online, and the most critical data have been included in this new edition, such as new paleoclimate

data from the European Project for Ice Coring in Antarctica (EPICA) and the fourth assessment report of the Intergovernmental Panel on Climate Change (IPCC, 2007, available at <http://www.ipcc.ch/ipccreports/assessments-reports.htm>). The book's chapters have also been rearranged so that the new structure guides the reader through the most basic components of climate and weather to the complexity of statistical concepts and climate models and implications for society as a whole. As such, the book provides a concise understanding of the fundamentals of climate and climate change without confronting the reader with excessive formulas or mathematics.

The book is organized into 11 well-illustrated chapters that include numer-



ous black-and-white photographs and illustrations. Each chapter ends with a summary section and questions related to the individual chapter, most of which encourage deeper thinking. The first chapter is an introduction to the subject of climate change and its complexity. It also differentiates between climate and weather patterns and climate variability versus climate change. The introduction of the time scales and connections