



Physical–Biological Interactions on Georges Bank and its Environs

INTRODUCTION

This volume of papers was stimulated by the presentations, both oral and poster, that were presented at the 1994 Ocean Science Meeting in a special session entitled “Effect of stratification on biological populations on Georges Bank” (Anonymous, 1994). The work presented there and here, for the most part, resulted from a series of research cruises in the late 1980s (SCOPEX) and early 1990s (Marine Ecosystem Response (MER) Stratification Experiment which was a precursor to the current GLOBEC Georges Bank Program). It also has resulted, in part, from retrospective analyses of data sets collected in the northwestern Atlantic coastal waters as far back as the early 1900s.

We have organized the papers in this volume to reflect the origin of the data sets and also their focus. Thus, the first four papers provide both broad geographical coverage and draw on information collected in the past by other researchers and research programs. The next 12 papers focus more specifically on recent data collections from the Gulf of Maine and Georges Bank, providing insight into the physical setting and biological findings that are directly or indirectly coupled.

The last seven papers are derived from the MER-sponsored Stratification Experiment that took place principally on the southern flank of Georges Bank in May of 1992. The experiment was developed to begin to address a major unresolved problem in fisheries oceanography, namely the mechanism(s) by which water column stratification may affect the survival of larval fish populations. In this experiment, new technology was tested in an effort to relate spatial and temporal variability in stratification on the southern flank of the Bank to changes in the food availability, growth, and survival of larval cod and haddock. Site-specific time series measurements of (i) the physical oceanographic and meteorological parameters controlling stratification, (ii) the vertical distribution of larval cod and haddock and their prey, and (iii) the condition of the larvae as indicated by an RNA–DNA ratio and other biochemical techniques were made. Two research vessels, the R.V. *Endeavor* and R.V. *Albatross IV*, conducted a coordinated research program during the period 17–29 May 1992 in which there were inter-comparisons of different acoustic instruments and in-situ samplers, i.e. MOCNESS, high-volume pump, and the Video Plankton Recorder (VPR). These inter-comparisons were made in an elaborate set of sampling experiments designed to provide information about the variability in biological and physical features on Georges Bank in order to characterize their spatial coherence and correlation length scales.

To help visualize some of the key results and otherwise illustrate and document some of the basic data which were analyzed in preparing some articles in this volume, a companion CD-ROM is enclosed and its contents and instructions for use are included in the Appendix at the back of this issue.

DEDICATION

We dedicate this volume to the memory of Ann Durbin, whose intellectual capabilities and instincts led to many key scientific insights and a productive research career, whose strong leadership skills and understanding of the ocean ecosystem aided significantly in the development of GLOBEC and other fisheries-related research initiatives, and whose courage in the face of a deadly illness has been inspirational to us all.

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Acknowledgements—The 1992 Georges Bank Stratification Experiment was supported by the Marine Ecosystem Response component of the NOAA Office of Global Change, and the crews of the R.V. *Endeavor* and R.V. *Albatross IV* contributed much to the success of the field work. The South Channel Ocean Productivity Experiment (SCOPEX) was funded by the National Science Foundation and the Department of Interior Mineral Management Service, and the crews of the R.V. *Endeavor* and R.V. *Marlin* contributed much to its success. We also acknowledge the immense help of our colleagues who anonymously provided constructive reviews and other suggestions about how to improve this volume, C. Clancy, who managed the review process, and R. Groman, who designed and produced the enclosed CD-ROM. Support for P. Wiebe and R. Beardsley were provided by NOAA, the National Science Foundation, and the Woods Hole Oceanographic Institution. This is contribution number 9267 from the Woods Hole Oceanographic Institution and contribution number 69 of the U.S. GLOBEC program, funded by NSF and NOAA.

REFERENCES

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