PREFACE

The first edition of *Microbial Ecology of the Oceans* was published almost 20 years ago, and the second edition reached the bookstores nearly 10 years ago. It is about time for a third edition. This one, like the second edition, is not a revision but really a new book. In addition to having new topics, the book has subjects that had been dealt with in previous versions but have been approached from a different point of view, usually by different authors. This third edition, however, has the same audience as the other two editions: advanced undergraduates, beginning graduate students, and colleagues from other fields wishing to learn about microbes and the processes they mediate in marine systems. As we discuss in Chapter 1, aquatic microbial ecology has become a well-established discipline that is still growing in size and attracting practitioners from other disciplines. This book is for students and colleagues looking for an updated view of some aspects of the field, written at an accessible level. Although a multi-authored book of limited size can never be a proper textbook, the various editions of the book—combined, can be used as one—with the additional advantage that together they reflect the evolution of the field (or so we hope). This edition does not replace the two previous ones even if some subjects have advanced more than others since 2000. Although some chapters of the previous editions might now seem old, most are still useful for a basic course in marine microbial ecology or microbial oceanography.

In the introductory chapter to the first edition, Kirchman and Williams argued that it probably would take much less than 20 years of work to fill another book titled *Microbial Ecology of the Oceans*. Well, two further editions have appeared in nearly 20 years, yet by far not all relevant issues are touched on by the three books, as we discuss in Chapter 1. A new edition is necessarily incomplete. Because only a few chapters can fit in a book like this one, we must necessarily select subjects that we believe relevant, that have clearly changed significantly in the last 10 years or that reflect new ways in which we see our science. We would be rewarded if the different views taken by the authors stimulate further innovative research. One disclaimer: This book is planktocentric. This probably reflects our training and interests and also the setting in which we work, surrounded by oceanographers and biogeochemists.

We considered having chapters on the benthic habitat (there was one in the second edition), as well as special habitats like sea ice, polluted environments, hydrothermal vents, or the microbiomes of large eukaryotic plants and animals. But this would have increased the size of the book in unaffordable ways or would have been a partial view of a growing field (e.g., microbiomes).

In addition to presenting the science, we would like to contribute to how it is executed. We think the field is still very much compartmentalized. Often researchers focused on phytoplankton do not deal with bacteria or archaea, or those that have viruses as their target do not care much about what protist people do. In the same way, sponge microbiome people interact little with plankton ecologists, except when they have new methods in common. Some of the chapters in this third edition have a focus on bacteria or phytoplankton or viruses, but several are cross-cutting and include both prokaryotes and eukaryotes, or because they are more biogeochemical, deal with several groups of organisms. We hope to contribute to breaking down the barriers between topics in marine microbial ecology.

Are textbooks still needed? Both editors of this book recently had to clean out their offices for renovation. We threw away whole collections of journals and hundreds of reprints. To (maybe) the despair of science historians, we threw away letters and preprints and submitted (and rejected!) versions of manuscripts, but neither of us threw out any relevant books, even textbooks from the last century. We hope the previous editions of *Microbial Ecology of the Oceans*, and this new one, will stand in libraries and remain in your office for years in the future even when renovation comes along.

We thank everyone that has been involved in this third edition, especially the authors that contributed manuscripts and the reviewers of the book syllabus and of the various chapters. In some cases, authors of this edition or of chapters in previous editions served as reviewers. In particular, we would like to thank Claudia Benitez-Nelson, Alison Buchan, Craig Carlson, Matt Church, Byron Crump, Paul del Giorgio, Virgina Edgcomb, Kyle Edwards, Zoe Finkel, Hans-Peter Grossart, Åke Hagström, Thomas Kiørboe, Emilio Marañón, Ramon Massana, Mark Moore, Mary Ann Moran, Mark Saito, Ruth-Anne Sandaa, Marta Sebastián, Evelyn and Barry Sherr, Meinhard Simon, Osvaldo Ulloa, Daniel Vaulot, and Erik Wommack. We especially thank Clara Ruiz-González for the figures in Chapter 1, and our students and colleagues (some contributed to compiling Table 1.1) for discussion about many aspects of the book.

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