

Preface

Before we started writing and after discussion with the Series Editor, it seemed a reasonably straightforward task to put together a book on *Environmental Physiology of Fishes*. Early on though, it became apparent that this was far from true, and in order to achieve the aims of the book, there would have to be careful selection of content and consideration of how deeply to explore it. The content was already determined to a certain extent, since this series follows a similar format and authors are invited to address general headings such as 'Extreme Environments' and 'New Techniques and Future Developments'. This helped create a focus, but at the same time, the book needed a vision to make the content accessible to a new generation of students. We hope this has been achieved and that this book engages the interest of the reader not only with basic concepts, but also with new and relevant work in environmental physiology, as well as indications as to how the subject may develop in the future.

In recent years, there has been a huge expansion in research into the many facets of animal biology, and disciplines that were once considered separate have now begun to overlap or even merge. Ecophysiology is a prime example. Having developed from areas of common interest in animal ecology and animal physiology, it now receives input from related disciplines including animal behaviour, comparative endocrinology, conservation biology, and importantly, the biomolecular sciences. Over the last few years, most branches of biology, including the ecophysiology of fishes, have been and continue to be reshaped by advances in the biomolecular sciences, particularly in areas such as comparative genomics. Very soon new insights may emerge from the application of DNA sequencing using the new-generation sequencing techniques and related methods. Even a brief survey of the literature reveals that research into the 'ecophysiology of fishes' occurs in all these areas and in many more as well. Material relating to the 'ecophysiology of fishes' appears across a wide range of publications including internet sources, and in writing this book, three things became clear to us. First, that it would be almost impossible to locate and appraise every relevant source for this volume. Second, that discussion with experts in the field together with relevant review material would be important in shaping the book. Third, that it would not be possible to cover all aspects of the subject, and thus some major areas would receive only a brief mention or be omitted altogether. Hopefully the topics selected more or less represent the meat of the subject and by them, the

reader will be informed about core aspects, areas of current interest, and possible future developments in these areas.

The book would not have been possible without reference to earlier publication in fish biology and related topics. These are listed in the General References. Each of these works receives special recognition and acknowledgement since they helped shape some of the sections. I hope the points made by the authors are reflected reasonably and receive acknowledgement. Many sections of the book are based on books and papers from the literature. Whenever possible, these are cited in the text and appear in the Bibliography. Material from these sources is gratefully acknowledged. My thanks go to my co-author Richard Handy for substantial contributions that shaped much of Chapters 2 and 5, and for critical evaluation of the other chapters. I would also like to thank Dr Nic Bury of Kings College, London, for helpful and critical comments on Chapters 4 and 5. There have been useful contributions from discussion with other colleagues and experts in this field, and we thank them too. Thanks go also to the Editor of this series, Warren Burggren and to my editor, Helen Eaton, for her help and encouragement. Financial support from the Leverhulme Trust is gratefully acknowledged.

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