Preface

This monograph summarizes the current trends and developments in the study of bacterial and viral fish and shrimp diseases. There are few books on these subjects and relevant review articles are mostly outdated. This volume will thus serve as a platform for scientists and aquaculturists to understand current limitations as well as new developments so that fish health and disease control can advance to new heights.

The first section (Chapters 1 to 3) provides readers with an overview of the bacterial and viral diseases and the current understanding of innate immunity and interactions with pathogens. Section II (Chapters 4 to 6) includes case studies, where three pathogens are presented, namely two bacteria (*Aeromonas hydrophila* and *Vibrio anguillarum*, the common causes of bacterial diseases in freshwater and marine aquaculture, respectively) and the white spot syndrome virus (a significant viral disease in shrimp). These case studies serve as models for the investigation of various bacterial and viral diseases. Section III (Chapters 7 to 10) presents new platform technologies that are widely used in the study of human pathogens. It aims to spur fish biologists to use modern and cutting edge technologies in their studies so that the study of fish diseases can move into the mainstream of microbiology studies and focus not only on applied research but also on basic research. The final section (Chapters 11 to 14) is on marine biotechnology, discussing biotechnology products (spin-offs from basic research,

including diagnostics, immunotherapy and vaccine development, and the use of probiotics) that are urgently needed for the aquaculture industry.

I wish to express my sincere thanks to all the authors for their contributions and valuable advice during the preparation of this monograph. It is my hope that this volume will bring a new dimension and inspiration to the study of fish health and disease control. Responsible and technology-driven aquaculture is urgently needed to aid food problems and should be a vital solution to improving diet all over the world. The study of pathogen-host interactions with up-to-date technologies will revolutionalize the future of fish and shellfish farming and produce high quality and safe food for our hungry world.

Ka Yin Leung
Department of Biological Sciences
National University of Singapore