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## Frontmatter

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## Preface

Along with the ever increasing world population is the pressing demand for affordable and healthy food sources. Fishery products and by products including fish and shellfish have for years, supplied people with quality food sources but its production, particularly marine production, have suffered a decline due to overfishing and several other factors both natural and man-made. To augment the dwindling wild-caught fishery production, culture or aquaculture of certain fish products, particularly those that are economically important and commands a high prize in markets, have intensified. The intensification of culture methods for prized fishery commodities have however, resulted in the emergence of bacterial and viral diseases that continue to plague the aquaculture industry.

Diseases caused by bacteria, viruses and certain parasites, have thus far been suggested as the main culprit for declining aquaculture production and are thus deemed responsible to for huge losses amounting to billions of dollars annually. There are a number of fish diseases that are of utmost importance due to their debilitating effects on both cultured and marine fish, and includes Streptococcosis caused by a number of *Streptococcus* spp., Furunculosis, Vibriosis, Edwasiellosis, Mycobacteriosis, Nocardiosis, to name a few. The need to prevent and counteract the effect of these diseases is therefore of paramount importance. In recent years, we saw the increase in studies focusing on fish diseases particularly on those involved in unveiling the etiological agents of the diseases and how to properly treat or eradicate them, which often involved chemotherapy or administration of antibiotics. To lessen the use of antibiotics which arguably brings with it harmful side effects, a lot have been put into the development of effective prophylactic methods against fish diseases such as vaccines and also on finding efficient and reliable means of diagnosing the disease.

The five chapters of this volume will cover in detail the various diseases in fish and shellfish caused by bacteria and viruses. The contributing authors of each section have had extensive experience with fish diseases and have outlined what we need to know regarding a particular disease in a manner that is both easy to understand and apply. In Chapter 1, the various methods for disease diagnosis, prevention including vaccination and treatment of fish diseases are discussed. Chapter 2 includes and presents the various ways fish and shellfish protect themselves or fight off disease causing pathogens through their immune systems. Chapters 3 and 4 describe the diseases caused by bacterial pathogens in inland water (or freshwater) and marine water, respectively. These chapters include the identification of bacterial species responsible for the diseases and how to properly diagnose and treat them. Chapter 5 presents fish diseases caused by viral pathogens, their etiological agents, diagnosis and treatment.

Fish diseases impacts not just national or regional economies, thus there is a global effort to control and prevent them. We are hoping the through our efforts here, people will be educated on various fish diseases and how to prevent or avoid them.

As the Coordinating Editor, I am deeply indebted to all the contributors to this volume. The UNESCO-EOLSS Joint Committee has provided helpful guidelines towards the organization of the contributions in this comprehensive volume.

**Takashi Aoki**  
Coordinating Editor