

TABLE OF CONTENTS – FISH DISEASES : PREVENTION AND CONTROL STRATEGIES

• Part I. Fish

Chapter 1. Immunology: Improvement of Innate and Adaptive Immunity

- 1.1. Introduction
- 1.2. Teleost Immunity
- 1.3. Effectors of the Immune Response
- 1.4. Improvement of the Immune Response
- 1.5. Concluding Remarks and Future Perspectives

Chapter 2. Improvement of Disease Resistance by Genetic Methods

- 2.1. How to Assess Disease Resistance in Fish?
- 2.2. Basic Genetic Principles
- 2.3. Selective Breeding to Improve Resistance
- 2.4. Application of New Biotechnologies
- 2.5. Role of Selective Breeding in an Overall Health Improvement Strategy
- 2.6. Conclusion

Part II. Pathogens

Chapter 3. Types of Pathogens in Fish, Waterborne Diseases

- 3.1. Introduction
- 3.2. Host Specificity of Pathogens
- 3.3. Viral Pathogens
- 3.4. Transmission of Fungal Disease: the Water Molds
- 3.5. Parasite Transmission
- 3.6. Conclusion

Chapter 4. Prophylactic and Prevention Methods Against Diseases in Aquaculture

- 4.1. Introduction
- 4.2. General Disease Prevention and Control Methods
- 4.3. Biologics
- 4.4. Conclusions

Chapter 5. Integrated Pathogen Management Strategies in Fish Farming

- 5.1. The Concept: What Are Integrated Pathogen Management Strategies and Why Does Aquaculture Need Them?

- 5.2. Diagnostic Tools, the Key for Identification and Monitoring of Pathogens
- 5.3. Modeling Disease Transmission and Risk Assessment
- 5.4. Prevention Strategies in Fish Farming
- 5.5. Treatment Strategies in Fish Farming
- 5.6. Conclusions and Future Perspectives
- Abbreviations

Part III. Environment

Chapter 6. General Relationship Between Water Quality and Aquaculture Performance in Ponds

- 6.1. Introduction
- 6.2. Water Quality–Aquatic Animal Health Interactions
- 6.3. Management and Water Quality
- 6.4. Water Quality–related Stressors
- 6.5. Water-Quality Management
 - 6.5.5. Toxic Algae
 - 6.5.6. Gas Supersaturation
 - 6.5.7. Ionic Imbalance
- 6.6. Conclusion

Chapter 7. Water Quality–Disease Relationship on Commercial Fish Farms

- 7.1. Water Temperature
- 7.2. Water pH
- 7.3. Oxygen
- 7.4. Ammonia
- 7.5. Nitrite
- 7.6. Chlorine

Chapter 8. Stress and Disease in Fish

- 8.1. Stress and Disease

Chapter 9. Planning a Fish-Health Program

- 9.1. Introduction
- 9.2. Fish Disease-Prevention Plan During the Facility Site Selection, Design, and Construction
- 9.3. Fish Disease-Prevention Plan Prior to Operation
- 9.4. Fish-Health Maintenance Plan During Operation
- 9.5. Proper Specimen Collection for Diagnostic Purposes
- 9.6. Fish Transportation
- 9.7. Vaccination
- 9.8. Biosecurity
- 9.9. Control Measures Upon Eruption of a Disease Outbreak

- 9.10. Formulating a Fish-Health Management Plan at the Regional/National and International Levels
- 9.11. Conclusion

Chapter 10. Aquatic Animal Health and the Environmental Impacts

- 10.1. Introduction
- 10.2. Natural Resource Use
- 10.3. Disease Transfer
- 10.4. Chemical Use
- 10.5. Conclusion.