FISH DISEASES AND DISORDERS

Volume 2
Non-infectious Disorders

Edited by

J.F. Leatherland
Ontario Veterinary College

and

P.T.K. Woo
Department of Zoology
University of Guelph
Canada

CABI Publishing
Contents

Contributors vii

Preface ix

1. Disorders of Development 1
   C.L. Brown and J.M. Núñez

2. Genetic Disorders 19
   M.M. Ferguson and R.G. Danzmann

3. Neoplasms and Related Lesions 37
   J.M. Grizzle and A.E. Goodwin

4. Disorders Associated with Heavy Metal Pollution 105
   P.-E. Olsson

5. Toxicopathic Responses to Organic Compounds 133
   C.D. Metcalfe

6. Immunological Disorders Associated with Polychlorinated Biphenyls and Related Halogenated Aromatic Hydrocarbon Compounds 163
   G.E. Noguchi

7. Disorders Associated with Environmental pH 187
   H.E. Witters

8. Disorders Associated with Exposure to Excess Dissolved Gases 207
   D.J. Speare
9. Osmotic and Ionic Regulation: Normal and Potential Disorders
   F.B. Eddy and W.S. Penrice
   225

10. Disorders of the Cardiovascular and Respiratory Systems
    G.K. Iwama and A.P. Farrell
    245

11. Stress Physiology
    P.K. Reddy and J.F. Leatherland
    279

12. Non-infectious Disorders Associated with Intensive Aquaculture Husbandry
    D.J. Speare
    303

13. Diagnostic Assessment of Non-infectious Disorders of Captive and Wild Fish Populations and the Use of Fish as Sentinel Organisms for Environmental Studies
    J.F. Leatherland, J.S. Ballantyne and G. Van Der Kraak
    335

Glossary
    367

Index
    379