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Nota di contenuto	Contents; Preface to the Third Edition; Acknowledgements to the Third Edition; List of Contributors; 1 Introduction; 'Comfort' and animal husbandry; Handling and mechanical damage; Pain; Summary; References; 2 Defining Stress in Aquatic Animals; Introduction; The adrenergic system and the hypothalamic-pituitary-inter-renal axis; The generalised stress response; External signs of stress; Internal signs of stress; Effects on heart rate; Haematological effects; Hormonal effects; Acclimation to stressors; Stress reduction; Stress reduction during anaesthesia; Stress induced by anaesthesia Summary References; 3 Pain in Aquatic Animals; Introduction; Defining pain; Nociception; The neurological basis of nociception; The central nervous system and pain perception; Nociception and pain perception in aquatic invertebrates; Nociception; Brain and central nervous system structure; Nociceptor to brain pathways; Opioids; Higher centres and learning; Nociception and pain perception in aquatic vertebrates;

Nociception; Brain and central nervous system structure; Nociceptor to brain pathways; Opioids; Higher centres, learning and cognition; Suspension of normal behaviour; Summary

References

4 The Nature of Anaesthesia, Sedation and Analgesia; General anaesthesia and sedation; Local anaesthesia; Analgesia; The mechanism of anaesthesia; The stages of anaesthesia; Dose, exposure time and effect achieved; Euthanasia; Summary; References

5 The Features of Anaesthetic Agents; Introduction; Desirable features of an anaesthetic agent; Toxicity and margin of safety; Additives; Summary; References

6 Anaesthesia and Legislation; Introduction; Safe operator practice for users and safe storage of drugs and chemicals; Food chain safety; Environmental safety

Animal welfare and experimentation

Safety legislation concerning electric fishing and similar electrical apparatus; Summary; References

7 Factors Affecting the Response of Aquatic Ectotherms to Anaesthesia; Introduction; Biotic factors; Environmental or abiotic factors affecting efficacy anaesthesia; Summary; References

8 Anaesthesia of Fish: I. Inhalation Anaesthesia; Introduction; Water quality maintenance during inhalation anaesthesia; The basic procedure; Direct application to the gills; Artificially ventilated inhalation anaesthesia; Drugs used for inhalation anaesthesia

Widely used drugs for inhalation anaesthesia

MS222; Benzocaine; Clove oil; AQUI-S R; Quinaldine and quinaldine sulphate; 2-Phenoxyethanol; Metomidate; Etomidate; Less widely used drugs for inhalation anaesthesia; 4-Styrylpyridine; Barbiturates; Amylobarbitone; Quinalbarbitone; Pentothal; Chloral hydrate; Chlorbutanol; Chloroform; Diethyl ether; Lidocaine; Methyl pentynol; Piscaine; Propanidid; Propoxate; Sodium cyanide; Tertiary amyl alcohol (TAA); Tertiary butyl alcohol (TBA); Tribromoethanol (TBE); Urethane; Inhalation anaesthesia using plant extracts; Summary; References

9 Anaesthesia of Fish: II. Inhalation Anaesthesia Using Gases

Sommario/riassunto

The second edition of *Anaesthetic and Sedative Techniques for Aquatic Animals* provided the fisheries and aquaculture industry with vital information on the use of sedation and anaesthetics in the avoidance of stress and physical damage, which can easily be caused by crowding, capture, handling, transportation and release. Now fully revised and expanded, the third edition has maintained its accessible format and incorporates much new emphasis on: Fish pain and welfare: a rapidly developing area of interest and debate; Anaesthesia and legislation: with an internatio