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| Nota di contenuto | Cover -- Title Page -- Copyright Page -- Contents -- Preface -- Acknowledgements -- Chapter 1 Phylogeny and Evolution of Marine Mussels -- Introduction -- Phylogeny of the Phylum Mollusca -- Phylogeny and Evolution of Bivalvia -- Evolution and Adaptive Radiation in Bivalvia -- Phylogeny and Evolution in the Mytilida -- Significant Evolutionary Developments in the Family Mytilidae -- Notes -- References -- Chapter 2 Functional Morphology -- Introduction -- Shell -- Structure -- External Characteristics -- Mantle -- Structure -- Function -- Gills -- Structure -- Functions -- Foot -- Byssus Composition -- Attachment -- Labial Palps -- Alimentary Canal -- Stomach and Digestive Gland -- Gonads -- Heart and Haemolymph Vessels -- Excretory Organs -- Nerves and Sensory Receptors -- References -- Chapter 3 Ecology of Marine Mussels -- Introduction -- Global and Local Distribution Patterns -- Global Distribution -- Local Distribution -- Factors Affecting Geographic Distribution -- Temperature, Salinity and Hydrographic Factors -- Factors Affecting Local Distribution -- Physical Factors -- Biological Factors -- Climate Change and Potential and Observed Impacts on Marine Mussels -- Climate Warming -- Ocean Acidification -- Hypoxia -- Notes -- References -- Chapter 4 Particle Processing and Nutrient Utilisation -- Introduction -- Filtration and Clearance Rates -- Estimation of Filtration Rate -- Factors Influencing Filtration Rate -- Control of Filtration Rate -- Energetic Costs of Filtration -- Particle Processing on the Gills and Labial Palps and in the Stomach -- Selective Particle Capture on the Gills -- Pre-ingestive Particle Processing on the Gills and Labial Palps -- Postingestive Particle Processing in the Stomach -- Alimentary Canal and Digestive Process -- The Stomach and Extracellular Digestion -- The Digestive Gland and Intracellular Digestion.<br>The Intestine -- Mussel Nutrition -- Absorption Efficiency -- Impacts of Mussels on Marine Ecosystems -- Bivalve Feeding and the Plankton Community -- Biodeposition and Mussels -- Notes -- References -- Chapter 5 Reproduction, Larval Development, Dispersal and Recruitment -- Introduction -- Sex Identification -- Doubly Uniparental Inheritance and Sex Determination -- Gametogenesis -- Reproductive Cycles -- Methods of Assessment -- Annual Cycles -- Factors Controlling Reproduction -- Exogenous Regulation of Gametogenesis and Spawning -- Endogenous Regulation of Gametogenesis -- Annual Storage Cycle -- Reproductive Effort and Fecundity -- Fertilisation and Gamete Compatibility -- Larval Development -- Factors Affecting Larval Growth -- Temperature and Salinity -- Food Ration -- Larval Dispersal and Population Connectivity -- Larval Identification and Abundance -- Settlement, Metamorphosis and Post-Larval Dispersal -- Settlement -- Metamorphosis and Post-Larval Dispersal -- Recruitment -- Notes -- References -- Chapter 6 Growth -- Introduction -- Measurement of Absolute Growth -- Length-Frequency Distributions -- Mark-and-Recapture and Growth Increment Analysis -- Shell Growth Rings -- The Mussel Shell as a Marine Archive -- Measurement of Allometric Growth -- Scope for Growth and Dynamic Energy Budget Models -- Scope for Growth -- Dynamic Energy Budget -- Growth Modulators -- Exogenous Growth Modulators -- Endogenous Growth Modulators -- Notes -- References -- Chapter 7 Physiology of the Circulatory, Respiratory and Excretory Systems -- Cardiovascular System -- Heart and Haemolymph -- Haemolymph Plasma and Haemocytes -- Heart Rate -- Respiratory System -- Factors Affecting Oxygen Consumption -- Excretory System -- Excretion -- Osmoregulation -- Notes -- References -- Chapter 8 Mussels and |

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Contaminants in the Marine Environment -- Heavy Metals -- Persistent Organic Contaminants -- Emerging Organic Contaminants -- Contaminant Levels in Seawater, Sediments and Biota -- Bioaccumulation -- Absorption and Absorption Efficiency -- Assimilation and Assimilation Efficiency -- Bioconcentration Factor -- Kinetic Modeling in Contaminant Bioaccumulation -- Factors Affecting Bioconcentration in Marine Mussels -- Biomonitoring -- Bioindicators -- Mussel Monitoring Programmes -- The Mussel Watch Program -- Mussel Watch Monitoring on the Californian Coast -- Mussel Watch Monitoring in Coastal Waters of the Mediterranean Sea -- Asia-Pacific Mussel Watch -- Biological Markers of Pollution -- Biomarkers in Perna Viridis and Other Marine Mussel Species -- An Integrative Biomarker Approach -- Notes -- References -- Chapter 9 Population Genetics, Genomics and Selective Breeding -- Introduction -- Population Genetics -- Molecular Markers and Applications -- Genetic Variation and Population Structure in Mussels -- Hybrid Zones -- Invasive Species: Origins, Dispersal and Population Genetics -- Mussel Genomics -- Genome Mapping -- Functional Genomics -- Quantitative Genetics -- Selective Breeding -- Notes -- References -- Chapter 10 Mussel Culture -- Introduction -- Wild Seed Collection -- Hatchery Culture of Seed and Juvenile Mussels -- Culture of Microalgae -- Replacement/Supplement Diets for Microalgae -- Hatchery Culture of Mussels -- Broodstock Conditioning -- Spawning, Fertilisation and Cryopreservation -- Embryo Development -- Larval Rearing -- Metamorphosis, Settlement and Nursery culture of Spat -- Disease in the Hatchery -- Grow-out of Mussel Seed -- Mussel Culture -- Culture Methods -- Offshore Mussel Culture -- Mussel Culture and the Environment -- An Ecosystem Approach to Bivalve Culture -- Notes -- References.
Chapter 11 Diseases, Parasites and the Immune Response -- Introduction -- Viruses -- Bacteria -- Fungi -- Protistans -- Apicomplexa -- Ascetosporea -- Chlorophyta -- Ciliophora -- Porifera -- Platyhelminths -- Trematodes -- Cestodes -- Turbellaria -- Annelids -- Crustaceans -- Neoplasia -- Defence Mechanisms -- Genomics of Bivalve Immunity -- Cellular Defence Components of the Immune System -- Immune Recognition -- Humoral Defence Mechanisms -- Signal Transduction Pathways -- Abiotic Effects on Mussel Immune Response -- Notes -- References -- Chapter 12 Mussels and Public Health -- Introduction -- Bacterial Infections -- Salmonella -- Vibrio -- Escherichia Coli -- Bacterial Assays -- Viral Infections -- Viral Assays -- Parasites -- Biotoxins -- Harmful Algal Blooms -- Detection of Marine Toxins -- Industrial Pollutants -- Controls on the Production and Processing of Mussels and Other Bivalves -- Regulatory Framework -- Controlling Harvesting Areas -- Bivalve Purification Procedures -- Monitoring and Quality Control -- Monitoring of Live Mussels in Canada: Legislation and Regulation -- Growing Areas: Sanitary Survey and Classification -- Marine Biotoxin Monitoring and Control -- Hazard Analysis and Critical Control Point and its Application -- Notes -- References -- Species Index -- Subject Index -- EULA.

Sommario/riassunto

"A comprehensive volume providing broad and detailed coverage of marine mussels Marine Mussels: Ecology, Physiology, Genetics and Culture provides readers with in-depth, fully up-to-date information on all major aspects of marine mussels. Written by an internationally-renowned expert in the field, this authoritative volume addresses morphology, ecology, feeding, phylogeny and evolution, reproduction and larval development, settlement and recruitment, genetics, disease,

management of culture systems, and more. The book encompasses many different species of marine mussels: genus Mytilus, other important commercial marine genera such as Perna, Aulacomya and Choromytilus, andnon-commercial genera including Modiolus, Geukensia, Brachidontes and hydrothermal vent Bathymodiolus. Comprising twelve extensively cross-referenced chapters, the book discusses a diversity of integrated topics that range from fundamental physiology of marine mussels to new techniques being applied in their biology and ecology. Author Elizabeth Gosling reviews contemporary developments and issues in the field such as the use of DNA genetic markers in detecting and diagnosing different strains of pathogenic bacteria, the use of mussels as monitors of marine contaminants, sophisticated modelling techniques that simulate disease and forecast outbreaks, and the impacts of global warming, ocean acidification, and hypoxia on marine mussels. Presenting an inclusive, highly detailed treatment of mussel biology, physiology, genetics, and culture, this invaluable resource: Contains thorough descriptions of external and internal anatomy, global and local distribution patterns, the impacts of mussels on marine ecosystems, and the processes of circulation, respiration, excretion, and osmoregulation Reflects significant advances in mussel science and new areas of research in marine mussels Describes the fundamentals of mussel aquaculture, the types and levels of contaminants in the marine environment, and new approaches for sustainable aquaculture development Discusses the application of genetic methods, population genetics, global breeding programmes, and the emerging area of bivalve genomics Addresses the role of mussels in disease transmission to humans, including production and processing controls, regulation of monitoring, and quality control Marine Mussels: Ecology, Physiology, Genetics and Culture is essential reading for biological scientists, researchers, instructors, and advanced students in the fields of biology, ecology, aquaculture, environmental science, toxicology, genetics, pathology, taxonomy, and public health"--