Tuna Physiology Ecology And Evolution Volume 19 Physiological Ecology And Evolution Fish Physiology

Recognizing the artifice ways to get this ebook **Tuna Physiology Ecology And Evolution Volume 19 Physiological Ecology And Evolution Fish Physiology** is additionally useful. You have remained in right site to begin getting this info. acquire the Tuna Physiology Ecology And Evolution Volume 19 Physiological Ecology And Evolution Fish Physiology join that we give here and check out the link.

You could buy lead Tuna Physiology Ecology And Evolution Volume 19 Physiological Ecology And Evolution Fish Physiology or acquire it as soon as feasible. You could speedily download this Tuna Physiology Ecology And Evolution Volume 19 Physiological Ecology And Evolution Fish Physiology after getting deal. So, subsequently you require the books swiftly, you can straight get it. Its so utterly simple and thus fats, isnt it? You have to favor to in this manner

The Physiology of Polar Fishes - Anthony Peter Farrell 2005
Devoted to fishes of high latitudes (Arctic and Antarctic). This book includes themes such as: the uniqueness of the physiology of fishes that live in cold polar environments, an analysis of physiological patterns exemplified by fishes that live poles apart, and how fishes differ from fishes living in more temperate and tropical habitats.
Physiology of Elasmobranch Fishes: Internal Processes - Robert E. Shadwick 2015-11-16
Fish Physiology: Physiology of Elasmobranch Fishes, Volume 34B is a useful reference for fish physiologists, biologists, ecologists, and conservation biologists. Following an increase in research on elasmobranchs due to the plight of sharks in today’s oceans, this volume compares elasmobranchs to other groups of fish, highlights areas of interest for future research, and offers perspective on future problems. Covering measurements and lab-and-field based studies of large pelagic sharks, this volume is a natural addition to the renowned Fish Physiology series. Provides needed comprehensive content on the physiology of elasmobranchs Offers a systems approach between structure and interaction with the environment and internal physiology Contains contributions by leading experts in their respective fields, under the guidance of internationally recognized and highly respected editors Highlights areas of interest for future research, including perspective on future problems
The Diversity of Fishes - Brian W. Bowen 2022-10-14
THE DIVERSITY OF FISHES The third edition of The

Diversity of Fishes is a major revision of the widely adopted ichthyology textbook, incorporating the latest advances in the biology of fishes and covering taxonomy, anatomy, physiology, biogeography, ecology, and behavior. Key information on the evolution of various fishes is also presented, providing expansive and conclusive coverage on all key topics pertaining to the field. To aid in reader comprehension, each chapter begins with a summary that provides a broad overview of the content of that chapter, which may be particularly useful for those using the text for a course who don’t intend to address every chapter in detail. Detailed color photographs throughout the book demonstrate just some of the diversity and beauty of fishes that attract many to the field. A companion website provides related videos selected by the authors, instructor resources, and additional references and websites for further reading. Sample topics covered and learning resources included in The Diversity of Fishes are as follows: How molecular genetics has transformed many aspects of ichthyology The close relationship between structure and function, including adaptations to special environments Many physical and behavioral adaptations reflecting the fact that many fishes are both predators and prey Fish interactions with other species within fish assemblages and broader communities, plus their impacts on ecosystems Global maps that more accurately represent the comparative sizes of oceans and land masses than maps used in prior editions For students, instructors, and individuals with an interest in ichthyology, The Diversity of Fishes is an all-in-one introductory resource to the field, presenting vast opportunities for learning, many additional resources to aid in information retention, and helpful recommendations on where to go to explore specific topics further.

Fish Physiology: Homeostasis and Toxicology of Essential Metals - 2011-06-28

Homeostasis and Toxicology of Essential Metals synthesizes the explosion of new information on the molecular, cellular, and organismal handling of metals in fish in the past 15 years. These elements are no longer viewed by fish physiologists as "heavy metals" that kill fish by suffocation, but rather as interesting moieties that enter and leave fish by specific pathways, which are subject to physiological regulation. The metals featured in this volume are those about which there has been most public and scientific concern, and therefore are those most widely studied by fish researchers. Metals such as Cu, Zn, Fe, Ni, Co, Se, Mo and Cr are either proven to be or are strongly suspected to be essential in trace amounts, yet are toxic in higher doses. The companion volume, Homeostasis and Toxicology of Non-Essential Metals, Volume 31B, covers metals that have no known nutritive function in fish at present, but which are toxic at fairly low levels, such as Ag, Al, Cd, Pb, Hg, As, Sr, and U. In addition, three chapters in Volumes 31A and 31B on Basic Principles (Chapter 1, 31A), Field Studies and Ecological Integration (Chapter 9, 31A) and Modeling the Physiology and Toxicology of Metals (Chapter 9, 31B) act as integrative summaries and make these two volumes a vital set for readers. All major essential metals of interest are covered in metal-specific chapters Each metal-specific chapter is written by fish physiologists/toxicologists who are recognized authorities for that metal A common format is featured throughout this two volume edition

Fish Physiology: The Physiology of Tropical Fishes -

Adalberto Luis Val 2005-08-18
The Physiology of Tropical Fishes is the 21st volume of the well-known Fish Physiology series and consists of 12 chapters. The purpose of the book is to consolidate and integrate what is known about tropical fishes (marine and freshwater species). The twelve chapters focus on the physiological adaptations acquired during the evolutionary process to cope with warm and shallow hypoxic waters from tropical and neotropical hydrographic basins as well as with the intertidal and coral reef habitats which occur in abundance in tropical seas. The special characteristics of tropical fish fauna will be issued in order to explain the tropical fish radiation, which gave rise to such extreme fish diversity. This present volume, is a voyage through the tropical region reviewing the fish diversity of the main tropical freshwater sheds, including the major tropical rivers and lakes, the major dams, and marine environments. State-of-the-art information on tropical fish physiology Written by specialists working in the Tropics Offers a diverse depiction of the various tropical fishes and the environment where they inhabit 12 innovative chapters covering a concise view of growth rate, biological rhythms, feeding plasticity, cardio-respiratory design and function, diversity of structure, and much more

Studies in Viral Ecology, Volume 2 - Christon J. Hurst 2011-08-23
This book explains the ecology of viruses by examining their interactive dynamics with their hosting species (in this volume, in animals), including the types of transmission cycles that viruses have evolved encompassing principal and alternate hosts, vehicles and vectoring species. Examining virology from an organismal biology approach and focusing on the concept that viral infections represent areas of overlap in the ecologies of the involved species, Viral Ecology is essential for students and professionals who either may be non-virologists or virologists whose previous familiarity has been very specialized.

Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change - Johann D. Bell 2011-01-01

Tuna - Barbara Ann Block 2001
Annotation Tuna are biologically fascinating, with many specializations such as endothermy (warm-bloodedness), aerobic capacity, and migratory abilities. The primary focus of this book is the physiology of tuna with respect to biomechanics, thermoregulation, and morphology. An evolutionary and phylogenetic backdrop illustrates the importance of comparative perspectives. Because of the economic importance of tuna, a secondary focus of the book is tuna aquaculture and conservation.

Biology and Ecology of Bluefin Tuna - Takashi Kitagawa 2015-08-05
This book focuses on latest information on the biology and ecology of the three bluefin tuna species: the Pacific (Thunnus orientalis), Atlantic (T. thynnus), and southern bluefin tuna (T. maccoyii). In the book, the phylogeny and basic ecological information such as early life history, age and growth, and food habits are covered. Information relat

Electronic Tagging and Tracking in Marine Fisheries - John R. Sibert 2013-03-09
Reviews: Methods and Technology in Fish Biology and Fisheries published by Kluwer Academic Publishers is a book series dedicated to the publication of information

on advanced, forward-looking methodologies, technologies, or perspectives in fish and is especially dedicated to relevant topics addressing global, fisheries. This series international concern in fish and fisheries. Humans continue to challenge our environments with new technologies and technological applications. The dynamic creativity of our own species often tends to place the greatest burden on our supporting ecosystems. This is especially true for aquatic networks of creeks, lakes, rivers and ocean environments. We also frequently use our conceptual powers to balance conflicting requirements and demands on nature and continue to develop new approaches and tools to provide sustainable resources as well as conserve what we hold most dear on local and global scales. This book series will provide a window into the developing dynamic among humans, aquatic ecosystems (both freshwater and marine), and the organisms that inhabit aquatic environments. There are many reasons to doubt the increasing social and economic value technology has gained over the last two centuries. Science and technology represent stages in human development. I agree with Ernst Mayer when he said in Toward a New Philosophy of Biology (1988) that "endeavors to solve all scientific problems by pure logic and refined measurements are unproductive, if not totally irrelevant.

Swimming Physiology of Fish - Arjan P. Palstra 2012-08-30

In light of mounting fishing pressures, increased aquaculture production and a growing concern for fish well-being, improved knowledge on the swimming physiology of fish and its application to fisheries science and aquaculture is needed. This book presents recent investigations into some of the most extreme examples of swimming migrations in salmons, eels and tunas, integrating knowledge on their performance in the laboratory with that in their natural environment. For the first time, the application of swimming in aquaculture is explored by assessing the potential impacts and beneficial effects. The modified nutritional requirements of “athletic” fish are reviewed as well as the effects of exercise on muscle composition and meat quality using state-of-the-art techniques in genomics and proteomics. The last chapters introduce zebrafish as a novel exercise model and present the latest technologies for studying fish swimming and aquaculture applications.

Conservation Physiology for the Anthropocene - Issues and Applications - 2022-11-18

Conservation Physiology for the Anthropocene – A Systems Approach, Volume 39B in the Fish Physiology series, is a comprehensive synthesis related to the physiology of fish in the Anthropocene. This volume helps solve knowledge gaps by considering the many ways in which different physiological systems (e.g., sensory physiology, endocrine, cardio-respiratory, bioenergetics, water and ionic balance and homeostasis, locomotion/biomechanics, gene function) and physiological diversity are relevant to the management and conservation of fish and fisheries. Chapters in this release include Using physiology for recovering imperiled species – the Delta smelt, Conservation hatcheries – the Sturgeon story, Aquatic pollutants and stressors, and more. Other sections discuss Fisheries interactions in a multi-stressor world, Environmental change in riverine systems - Amazon basin stressors, Environmental change in lakes and wetlands – East African basin stressors, Coral reef fish in a multi-

stressor world, Polar fish in a multi-stressor world, Physiology informs fisheries restoration and habitat management, A physiological perspective on fish passage and entrainment, Invasive species control and management – the sea lamprey story, and On the conservation physiology of fishes for tomorrow. Includes authoritative contributions from an international board of authors, each with extensive expertise in the conservation physiology of fish Provides the most up-to-date information on the ways in which different physiological systems are relevant to the management and conservation of fish and fisheries Presents the latest release in the Fish Physiology series Identifies how anthropogenic stressors perturb physiological systems Explores how different physiological systems can be exploited to solve conservation problems

The Physiology of Fishes - David H. Evans 2005-12-15

New scientific approaches have dramatically evolved in the decade since The Physiology of Fishes was first published. With the genomic revolution and a heightened understanding of molecular biology, we now have the tools and the knowledge to apply a fresh approach to the study of fishes. Consequently, The Physiology of Fishes, Third Edition is not merely another updating, but rather an entire reworking of the original. To satisfy that need for a fresh approach, the editors have employed a new set of expert contributors steeped in the very latest research; their contemporary perspective pervades the entire text. In addition to new chapters on gas transport, temperature physiology, and stress, as well as one dedicated to functional genomics, readers will discover that many of these new contributors approach their material with a contemporary molecular perspective. While much of the material is new, the editors have completely adhered to the original's style in creating a text that continues to be highly readable and perpetually insightful in bridging the gap between pure and applied science. The Physiology of Fishes, Third Edition, completely updated with a molecular perspective, continues to be regarded as the best single-volume general reference on all major areas of research in fish physiology. The Physiology of Fishes, Third Edition provides background information for advanced students as well as material of interest to marine and fisheries biologists, ichthyologists, and comparative physiologists looking to differentiate between the physiological strategies unique to fishes, and those shared with other organisms.

The Journal of Experimental Biology - 2007

Fish Physiology: Euryhaline Fishes - Stephen D. McCormick 2013-01-11

The need for ion and water homeostasis is common to all life. For fish, ion and water homeostasis is an especially important challenge because they live in direct contact with water and because of the large variation in the salt content of natural waters (varying by over 5 orders of magnitude). Most fish are stenohaline and are unable to move between freshwater and seawater. Remarkably, some fishes are capable of life in both freshwater and seawater. These euryhaline fishes constitute an estimated 3 to 5% of all fish species. Euryhaline fishes represent some of the most iconic and interesting of all fish species, from salmon and sturgeon that make epic migrations to intertidal mudskippers that contend with daily salinity changes. With the advent of global climate change and increasing sea levels, understanding the environmental physiology

of euryhaline species is critical for environmental management and any mitigative measures. This volume will provide the first integrative review of euryhalinity in fish. There is no other book that focuses on fish that have the capacity to move between freshwater and seawater. The different challenges of salt and water balance in different habitats have led to different physiological controls and regulation, which heretofore has not been reviewed in a single volume. Collects and synthesizes the literature covering the state of knowledge of the physiology of euryhaline fish Provides the foundational information needed for researchers from a variety of fields, including fish physiology, conservation and evolutionary biology, genomics, ecology, ecotoxicology, and comparative physiology All authors are the leading researchers and emerging leaders in their fields

Fish Physiology: Organic Chemical Toxicology of Fishes - Keith B. Tierney 2013-12-04

Fish Physiology: Organic Chemical Toxicology of Fishes discusses the different types of organic chemical contaminants and their respective toxic effects in fish. The book also covers the detection of dissolved organic compounds and methods to assess organic toxicity. Substances addressed in this book include organometallics, hydrocarbons, endocrine disrupting compounds (EDCs), insecticides, herbicides, and pharmaceuticals. Fish are exposed to an ever-increasing array of organic chemicals that find their way into rivers and oceans. Some of these compounds are no longer being produced but nonetheless persist within the environment (persistent organic pollutants, or POPs). The exposure of fish to toxic organic compounds has potential impact on human, fish, and ecosystem health. Yet the regulations that govern environmental water quality vary worldwide, and compliance is never complete. This book provides a crucial resource on these issues for researchers in zoology, fish physiology, and related fields; applied researchers in environmental monitoring, conservation biology, and toxicology; and university-level students and instructors in these areas. Organized by type of toxic organic chemicals Includes metals, POPs, EDCs, herbicides, insecticides, and pharmaceuticals Measures toxicity in a variety of ways aside from lethality Probes the toxic effects of compound mixtures as well as single pollutants

Journal of Experimental Biology - 2004

Conservation Physiology for the Anthropocene - A Systems Approach - 2022-10-21

Conservation Physiology for the Anthropocene: A Systems Approach, Volume 39A in the Fish Physiology series, is a comprehensive synthesis on the physiology of fish in the Anthropocene. This volume closes the knowledge gap by considering the many ways in which different physiological systems (e.g., sensory physiology, endocrine, cardio-respiratory, bioenergetics, water and ionic balance and homeostasis, locomotion/biomechanics, gene function) and physiological diversity are relevant to management and conservation. As the world is changing, with a dire need to identify solutions to the many environmental problems facing wild fish populations, this book comprehensively covers conservation physiology and its future techniques. Conservation physiology reveals the many ways in which environmental change and human activities can negatively influence wild fish populations. These tactics inform new management and conservation activities and help

create the necessary conditions for fish to thrive. Presents authoritative contributions from an international board of authors, each with extensive expertise in the conservation physiology of fish Provides the most up-to-date information on the ways in which different physiological systems are relevant to the management and conservation of fish and fisheries Identifies how anthropogenic stressors perturb physiological systems Explores how different physiological systems can be exploited to solve conservation problems

Fish Physiology: Behaviour and Physiology of Fish - Katherine A. Sloman 2005-12-13

Traditionally, behaviour and physiology have been considered two separate fields of biology with the majority of available literature focusing on one or the other. Recently the need for a multidisciplinary approach to these topics has been realised, highlighted by some of the sessions to be held at the 2003 annual meeting of the Society for Integrative and Comparative Biology such as 'regulation of behaviour' and 'mechanisms of behaviour'. The proposed volume aims to bring together these disciplines in a comprehensive review of the available literature. Fish Physiology: Behaviour and Physiology of Fish will be novel in actively bridging these two areas of fish biology together and considering them as inextricably linked. The progression of chapters focuses on different aspects of the life history of a fish, from predator avoidance through to reproduction, each written by scientists currently bridging the gap between behaviour and physiology in their own specialised subdiscipline. Multidisciplinary and integrative research in fish biology Written by internationally recognized researchers Encompasses the whole life span of fish A wide variety of inter-related topics presented in a cohesive format

Homeostasis and Toxicology of Essential Metals - Chris M. Wood 2012

Homeostasis and Toxicology of Essential Metals synthesizes the explosion of new information on the molecular, cellular, and organismal handling of metals in fish in the past 15 years. These elements are no longer viewed by fish physiologists as "heavy metals" that kill fish by suffocation, but rather as interesting moieties that enter and leave fish by specific pathways, which are subject to physiological regulation. The metals featured in this volume are those about which there has been most public and scientific concern, and therefore are those most widely studied by fish researchers. Metals such as Cu, Zn, Fe, Ni, Co, Se, Mo and Cr are either proven to be or are strongly suspected to be essential in trace amounts, yet are toxic in higher doses. The companion volume, Homeostasis and Toxicology of Non-Essential Metals, Volume 31B, covers metals that have no known nutritive function in fish at present, but which are toxic at fairly low levels, such as Ag, Al, Cd, Pb, Hg, As, Sr, and U. In addition, three chapters in Volumes 31A and 31B on Basic Principles (Chapter 1, 31A), Field Studies and Ecological Integration (Chapter 9, 31A) and Modeling the Physiology and Toxicology of Metals (Chapter 9, 31B) act as integrative summaries and make these two volumes a vital set for readers. All major essential metals of interest are covered in metal-specific chapters Each metal-specific chapter is written by fish physiologists/toxicologists who are recognized authorities for that metal A common format is featured

throughout this two volume edition.

Fish Physiology: Sensory Systems Neuroscience - Toshiaki J. Hara 2006-10-17

Fish sensory systems have been extensively studied not only because of a wide general interest in the behavioral and sensory physiology of this group, but also because fishes are well suited as biological models for studies of sensory systems. Fish Physiology: Sensory Systems Neuroscience describes how fish are able to perceive their physical and biological surroundings, and highlights some of the exciting developments in molecular biology of fish sensory systems. Volume 25 in the Fish Physiology series offers the only updated thorough examination of fish sensory systems at the molecular, cellular and systems levels. Offers a comprehensive account of the present state of science in this rapidly expanding and developing field New physiological techniques presented to enable examining responses at the cellular and system levels Discusses fish sensory systems and how they have adapted to the physiological challenges presented by an aquatic environment

Fish Physiology: Homeostasis and Toxicology of Non-Essential Metals - 2011-07-01

Homeostasis and Toxicology of Non-Essential Metals synthesizes the explosion of new information on the molecular, cellular, and organismal handling of metals in fish in the past 15 years. These elements are no longer viewed by fish physiologists as "heavy metals" that kill fish by suffocation, but rather as interesting moieties that enter and leave fish by specific pathways, which are subject to physiological regulation. The metals featured in this volume are those about which there has been most public and scientific concern, and therefore are those most widely studied by fish researchers. Metals such as Ag, Al, Cd, Pb, Hg, As, Sr, and U have no known nutritive function in fish at present, but are toxic at fairly low levels. The companion volume, Homeostasis and Toxicology of Essential Metals, Volume 31A, covers metals that are either proven to be or are strongly suspected to be essential in trace amounts, yet are toxic in higher doses. Metals such as Cu, Zn, Fe, Ni, Co, Se, Mo and Cr. In addition, three chapters in Volumes 31A and 31B on Basic Principles (Chapter 1, 31A), Field Studies and Ecological Integration (Chapter 9, 31A) and Modeling the Physiology and Toxicology of Metals (Chapter 9, 31B) act as integrative summaries and make these two volumes a vital set for readers. All major essential metals of interest are covered in metal-specific chapters Each metal-specific chapter is written by fish physiologists/toxicologists who are recognized authorities for that metal A common format is featured throughout this two volume edition

Fish Physiology: Fish Biomechanics - Robert E. Shadwick 2006-02-02

The first in two decades to exclusively integrate physiological and biomechanical studies of fish locomotion, feeding and breathing, making this book both comprehensive and unique. Fish Physiology: Fish Biomechanics reviews and integrates recent developments in research on fish biomechanics, with particular emphasis on experimental results derived from the application of innovative new technologies to this area of research, such as high-speed video, sonomicrometry and digital imaging of flow fields. The collective chapters, written by leaders in the field, provide a multidisciplinary view and synthesis of the latest

information on feeding mechanics, breathing mechanics, sensory systems, stability and maueverability, skeletal systems, muscle structure and performance, and hydrodynamics of steady and burst swimming, including riverine passage of migratory species. Book presents concepts in biomechanics, a rapidly expanding area of research First volume in over twenty years on this subject Multi-author volume with contributions by leaders in the field Clear explanations of basic biomechanical principles used in fish research Well illustrated with summary figures and explanatory color diagrams

Ontogeny and Phylogeny of the Vertebrate Heart - David Sedmera 2012-06-23

This collection of reviews will be of considerable interests to biologists and MDs working on any aspect of cardiovascular function. With state-of-the-art reviews written by competent experts in the field, the content is also of interest for MSc and PhD students in most fields of cardiovascular physiology.

Fishes - Gene Helfman 2011-11-03

One fish, two fish, red fish, nearly thirty thousand species of fish -- or fishes, as they are properly called when speaking of multiple species. This is but one of many things the authors of this fascinatingly informative book reveal in answering common and not-so-common questions about this ubiquitous group of animals. Fishes range in size from tiny gobies to the massive Ocean Sunfish, which weighs thousands of pounds. They live in just about every body of water on the planet. Ichthyologists Gene Helfman and Bruce Collette provide accurate, entertaining, and sometimes surprising answers to over 100 questions about these water dwellers, such as "How many kinds of fishes are there?" "Can fishes breathe air?" "How smart are fishes?" and "Do fishes feel pain?" They explain how bony fishes evolved, the relationship between them and sharks, and why there is so much color variation among species. Along the way we also learn about the Devils Hole Pupfish, which has the smallest range of any vertebrate in the world; Lota lota, the only freshwater fish to spawn under ice; the Candiru, a pencil-thin Amazonian catfish that lodges itself in a very personal place of male bathers and must be removed surgically; and many other curiosities. With over 100 photographs -- including two full-color photo galleries -- and the most up-to-date facts on the world's fishes from two premier experts, this fun book is the perfect bait for any curious naturalist, angler, or aquarist.

Methods in Reproductive Aquaculture - Elsa Cabrita 2008-08-22

The large amount of information on fish reproduction available is not always readily accessible to all interested parties. Written to appeal to aquaculturalists, conservation managers, and scientific researchers, Methods in Reproductive Aquaculture provides an overview of available techniques and addresses ways to improve depleted stocks of endange

Recent updates in molecular Endocrinology and Reproductive Physiology of Fish - Jitendra Kumar Sundaray 2021-01-27

This book is dedicated to present different aspects of reproductive physiology and molecular endocrinology of commercially important as well as potential aquaculture fish species. The existing aquaculture generation is looking for species diversification for efficient utilization of available diverse water resources. The knowledge of reproductive physiology of fish will help

in development of breeding strategy for use in commercial aquaculture. Reproductive system is highly coordinated and governed by means of complex network of nervous, endocrine system and environmental factor as well. This book emphasize on different key aspects of reproductive endocrine system such as basic gonadal biology in the events of climate vulnerability, sex determination, sex reversal, stimulatory hormones, inhibitory hormones and receptors, environmental and chemical factor guiding reproduction, puberty, neuroendocrine regulation of reproduction etc. This book further describes how reproduction is not just indispensable for the existence or survival of an individual, but it is important for the survival of species. Chapters also address the concerns of anthropogenic activities on fish and the aquatic environment lead main trouble on physiological and reproductive processes of aquatic animals. This book offers an attractive compilation of highly relevant aspects of current and future of aquaculture, especially in view of the growing awareness of aquaculture, to food scientists working on commercial fish, animal biologists, fish geneticists etc. This book is very timely, and relevant to the sustainable development goals. The contents would be relevant to policy makers, working towards blue revolution and blue economy.

Sharks and Their Relatives II - Jeffrey C. Carrier 2010-03-09

Since the award-winning first volume, The Biology of Sharks and Their Relatives, published in 2004, the field has witnessed tremendous developments in research, rapid advances in technology, and the emergence of new investigators beginning to explore issues of biodiversity, distribution, physiology, and ecology in ways that eluded more traditional studies. As an entirely new companion volume, Sharks and Their Relatives II: Biodiversity, Adaptive Physiology, and Conservation brings you up to speed on these significant changes, specifically examining how elasmobranch fishes – the sharks, skates, rays, and chimaeras – successfully survive in a wide range of habitats. Emphasizes Conservation of Threatened Species This multidisciplinary volume begins by examining elasmobranch biodiversity patterns and their integrated sensory systems. It then explores the physiological adaptations – from unique sensory modalities to compensatory mechanisms for physiological and environmental stress – that make these animals particularly well-suited for the range of habitats where they are found, in both oceanic and freshwater realms. Features Established Researchers and Introduces New Pioneers in the Field The book then considers the human interactions and anthropogenic effects on worldwide elasmobranch populations and the potential extinction risks posed by increasing threats from changes in habitat, changes in water chemistry, and growing commercial exploitation. This text truly is unrivaled in terms of coverage and readability, and it is a must-have reference for marine biologists, fishery scientists, oceanographers, and also marine, zoo, and aquarium veterinarians. To address subject areas and subdisciplines where coverage was absent or superficial in volume one, Jeffrey Carrier and associates have assembled in the current volume a collection of works that reveal patterns of biodiversity, the physiological attributes that contribute to elasmobranchs' successful exploitation of oceanic and freshwater realms, and the unique issues associated with the interaction between

elasmobranchs and humans, all of this with overarching attention to issues of conservation. "We begin with chapters examining biodiversity. We have chosen to approach this discussion by presenting elasmobranchs as inhabitants of the range of zoogeographic provinces, realizing that significant overlap may occur for more pelagic species. This realization was reflected in the dialogue that occurred during preparation of the book between our chapter authors, and the recognition that many species simply cannot be confined to a specific habitat or range of habitats. We then continue by examining some of the unique physiological adaptations that allow these animals to exploit the range of habitats where they are found, from unique sensory modalities to compensatory mechanisms for physiological and environmental stress. "Our concluding section presents some of the challenges faced by members of these groups. We have asked our authors to consider human interactions and anthropogenic effects on worldwide populations and the potential extinction risks posed from survival under increasing threats from changes in habitat, changes in water chemistry, and increasing commercial exploitation. Conservation of species under threat remains a theme throughout the book. "Our authors represent an international group of investigators including established scientists whose work has been widely published and respected, and emerging younger scientists who have exploited recent advances in technology to ask and answer new questions as well as offering new insights and interpretations to enduring problems in the fields of ecology and physiology. We have asked them to be speculative and challenging, and we have asked them to predict future areas for investigation in hopes that their work will both inspire and provoke additional studies of these fascinating animals." - from the Preface

The Ocean Sunfishes - Tierney M. Thys 2020-12-11

The Ocean Sunfishes: Evolution, Biology and Conservation is the first book to gather into one comprehensive volume our fundamental knowledge of the world-record holding, charismatic ocean behemoths in the family Molidae. From evolution and phylogeny to biotoxins, biomechanics, parasites, husbandry and popular culture, it outlines recent and future research from leading sunfish experts worldwide This synthesis includes diet, foraging behavior, migration and fisheries bycatch and overhauls long-standing and outdated perceptions. This book provides the essential go-to resource for both lay and academic audiences alike and anyone interested in exploring one of the ocean’s most elusive and captivating group of fishes.

The Diversity of Fishes - Gene Helfman 2009-04-03

The second edition of The Diversity of Fishes represents a major revision of the world’s most widely adopted ichthyology textbook. Expanded and updated, the second edition is illustrated throughout with striking color photographs depicting the spectacular evolutionary adaptations of the most ecologically and taxonomically diverse vertebrate group. The text incorporates the latest advances in the biology of fishes, covering taxonomy, anatomy, physiology, biogeography, ecology, and behavior. A new chapter on genetics and molecular ecology of fishes has been added, and conservation is emphasized throughout. Hundreds of new and redrawn illustrations augment readable text, and every chapter has been revised to reflect the discoveries and greater understanding achieved during the past decade. Written by a team of internationally-recognized authorities, the

first edition of The Diversity of Fishes was received with enthusiasm and praise, and incorporated into ichthyology and fish biology classes around the globe, at both undergraduate and postgraduate levels. The second edition is a substantial update of an already classic reference and text. Companion resources site This book is accompanied by a resources site: www.wiley.com/go/helfman The site is being constantly updated by the author team and provides: · Related videos selected by the authors · Updates to the book since publication · Instructor resources · A chance to send in feedback

Fish Physiology: Zebrafish - 2010-06-23

This cutting-edge resource includes up-to-date information on zebrafish physiology and the tools used to study it, not only as a model species for studies of other vertebrates but with application for studies of human disease and aquatic toxicology. The utility of zebrafish for physiological research is based on several key features including i) a "fully" sequenced genome, ii) rapid (~3 month) generation times), iii) their capacity to produce large numbers of externally fertilized eggs, iv) optical transparency of embryos and larvae, and v) the applicability of reverse and forward genetics to assess gene function. Gene knockdown in embryos and the production of transgenic strains are now standard techniques being used to assess physiology. This book will be of keen interest not only to the typical readers of Fish Physiology but also to biomedical researchers, toxicologists and developmental biologists. Integrates and synthesizes the biology of the zebrafish under one cover Features contributions from the leading researchers in their fields Reaches a wider audience of researchers and biologists with its broad inclusion of subjects relating to zebrafish physiology

The Physiology of Fishes - Suzanne Currie 2020-09-07

The fifth edition of The Physiology of Fishes represents a compendium of knowledge across fish physiology, collecting up-to-date research into an easy-to-access single textbook. Written by the leaders in the field, it provides a comprehensive, accessible review of the core topics, integrating physiology with environmental science, ecology, evolution, and molecular cell biology. New chapters address Epigenetics, Biomechanics and Locomotion, and Behaviour and Learning. Each chapter contains an extensive bibliography, providing readers with the best sources from the primary literature. Almost three decades after the publication of the first edition, this book remains the only published single-volume work on fish physiology. The fifth edition provides an important reference for new students of fish biology, marine and freshwater biologists, ichthyologists, fisheries scientists, and comparative physiologists.

Physiology of Elasmobranch Fishes: Structure and Interaction with Environment - Robert E. Shadwick 2015-11-16

Fish Physiology: Physiology of Elasmobranch Fishes, Volume 34A is a useful reference for fish physiologists, biologists, ecologists, and conservation biologists. Following an increase in research on elasmobranchs due to the plight of sharks in today’s oceans, this volume compares elasmobranchs to other groups of fish, highlights areas of interest for future research, and offers perspective on future problems. Covering measurements and lab-and-field based studies of large pelagic sharks, this volume is a natural addition to the

renowned Fish Physiology series. Provides needed comprehensive content on the physiology of elasmobranchs Offers a systems approach between structure and interaction with the environment and internal physiology Contains contributions by leading experts in their respective fields, under the guidance of internationally recognized and highly respected editors Highlights areas of interest for future research, including perspective on future problems

Encyclopedia of Fish Physiology - 2011-06-01

Fish form an extremely diverse group of vertebrates. At a conservative estimate at least 40% of the world's vertebrates are fish. On the one hand they are united by their adaptations to an aquatic environment and on the other they show a variety of adaptations to differing environmental conditions - often to extremes of temperature, salinity, oxygen level and water chemistry. They exhibit an array of behavioural and reproductive systems. Interesting in their own right, this suite of adaptive physiologies provides many model systems for both comparative vertebrate and human physiologists. This four volume encyclopedia covers the diversity of fish physiology in over 300 articles and provides entry level information for students and summary overviews for researchers alike. Broadly organised into four themes, articles cover Functional, Thematic, and Phylogenetic Physiology, and Fish Genomics Functional articles address the traditional aspects of fish physiology that are common to all areas of vertebrate physiology including: Reproduction, Respiration, Neural (Sensory, Central, Effector), Endocrinology, Renal, Cardiovascular, Acid-base Balance, Osmoregulation, Ionoregulation, Digestion, Metabolism, Locomotion, and so on. Thematic Physiology articles are carefully selected and fewer in number. They provide a level of integration that goes beyond the coverage in the Functional Physiology topics and include discussions of Toxicology, Air-breathing, Migrations, Temperature, Endothermy, etc. Phylogenetic Physiology articles bring together information that bridges the physiology of certain groupings of fishes where the knowledge base has a sufficient depth and breadth and include articles on Ancient Fishes, Tunas, Sharks, etc. Genomics articles describe the underlying genetic component of fish physiology and high light their suitability and use as model organisms for the study of disease, stress and physiological adaptations and reactions to external conditions. Winner of a 2011 PROSE Award Honorable Mention for Multivolume Science Reference from the Association of American Publishers The definitive encyclopedia for the field of fish physiology Three volumes which comprehensively cover the entire field in over 300 entries written by experts Detailed coverage of basic functional physiology of fishes, physiological themes in fish biology and comparative physiology amongst taxonomic Groups Describes the genomic bases of fish physiology and biology and the use of fish as model organisms in human physiological research Includes a glossary of terms

Tagging and Tracking of Marine Animals with Electronic Devices - Jennifer L. Nielsen 2009-06-10

The 2nd international tagging and tracking symposium was held in San Sebastian, Spain, in October 2007, seven years after the first symposium was held in Hawaii in 2000 (Sibert and Nielsen 2001). In the intervening seven years, there have been major advances in both the capability and reliability of electronic tags and analytical approaches for geolocation of tagged animals

in marine habitats. Advances such as increased data storage capacity, sensor development, and tag miniaturization have allowed researchers to track a much wider array of marine animals, not just large and charismatic species. Importantly, data returned by these tags are now being used in population analyses and movement simulations that can be directly utilized in stock assessments and other management applications. Papers in this volume are divided into three sections, the first describing insights into behavior achieved using acoustic, archival, and novel tags, the second reporting on advances in methods of geolocation, while the final section includes contributions where tag data have been used in management of marine species. Accurate documentation of animal movements and behaviors in critical marine habitats are impossible to obtain with other technologies. The management and conservation of marine species are critical in today’s changing ocean environment and as electronic tags become more accurate and functional for a diversity of organisms their application continues to grow, setting new standards in science and technology.

Homeostasis and Toxicology of Non-essential Metals - Chris M. Wood 2012

Homeostasis and Toxicology of Non-Essential Metals synthesizes the explosion of new information on the molecular, cellular, and organismal handling of metals in fish in the past 15 years. These elements are no longer viewed by fish physiologists as "heavy metals" that kill fish by suffocation, but rather as interesting moieties that enter and leave fish by specific pathways, which are subject to physiological regulation. The metals featured in this volume are those about which there has been most public and scientific concern, and therefore are those most widely studied by fish researchers. Metals such as Ag, Al, Cd, Pb, Hg, As, Sr, and U have no known nutritive function in fish at present, but are toxic at fairly low levels. The companion volume, Homeostasis and Toxicology of Essential Metals, Volume 31A, covers metals that are either proven to be or are strongly suspected to be essential in trace amounts, yet are toxic in higher doses. Metals such as Cu, Zn, Fe, Ni, Co, Se, Mo and Cr. In addition, three chapters in Volumes 31A and 31B on Basic Principles (Chapter 1, 31A), Field Studies and Ecological Integration (Chapter 9, 31A) and Modeling the Physiology and Toxicology of Metals (Chapter 9, 31B) act as integrative summaries and make these two volumes a vital set for readers. All major essential metals of interest are covered in metal-specific chapters Each metal-specific chapter is written by fish physiologists/toxicologists who are recognized authorities for that metal A common format is featured throughout this two volume edition

Advances in Tuna Aquaculture - Daniel Benetti 2015-11-21

Advances in Tuna Aquaculture: From Hatchery to Market provides detailed overviews on the current status of tuna fisheries, fattening, and farming practices, as well as advances in closed-cycle tuna aquaculture. Contributors are renowned scientists, internationally recognized as authorities in their fields. This book addresses all basic and applied aspects of tuna aquaculture, presenting and discussing the global status of tuna fisheries, reproduction, broodstock management, spawning, larval rearing and early developmental stages including nursery and grow out methods. It presents incorporates the most comprehensive and updated data, statistics, and trends in tuna fisheries and

aquaculture, covering and addresses a variety of topics ranging fromfrom endocrinology, nutrition, diseases, and genetics to economics and markets. It covers describes recent up-to-date progress on tuna aquaculture and hatchery development. It also provides a synopsisn overview of the challenges presently confronted by tuna aquaculturists,facing tuna aquaculture and and offers innovative views on the challengesbottle-neck issues faced by the industry with the current shift from fisheries to fattening to closed-cycle aquaculture. This is the first book to encompass all aspects related to the tuna aquaculture industry, and merges them into a state-of-the-art compendium that will serve as seminal reference for students, researchers, and professionals working with tuna biology, fisheries, and aquaculture worldwide. Incorporates and reviews the most recent information on tuna fisheries and aquaculture Presents the most innovative production technologies in tuna aquaculture, from hatchery to market Includes important information on tuna, derived from industry experience and academic research on larval rearing technology and grow out operations Encompasses and discusses key topics such as genetics, diseases, nutrition, endocrinology, and reproduction, as well as developments, challenges, and future opportunities in tuna aquaculture Provides the latest scientific methods and technologies to maximize efficiencies and production Presents the independent and collective assessments, viewpoints, and visions of various scientists, all internationally recognized as authorities in the field

Fish Physiology: Hypoxia - Jeffrey G. Richards 2009-03-10

Periods of environmental hypoxia (Low Oxygen Availability) are extremely common in aquatic systems due to both natural causes such as diurnal oscillations in algal respiration, seasonal flooding, stratification, under ice cover in lakes, and isolation of densely vegetated water bodies, as well as more recent anthropogenic causes (e.g. eutrophication). In view of this, it is perhaps not surprising that among all vertebrates, fish boast the largest number of hypoxia tolerant species; hypoxia has clearly played an important role in shaping the evolution of many unique adaptive strategies. These unique adaptive strategies either allow fish to maintain function at low oxygen levels, thus extending hypoxia tolerance limits, or permit them to defend against the metabolic consequences of oxygen levels that fall below a threshold where metabolic functions cannot be maintained. The aim of this volume is two-fold. First, this book will review and synthesize the adaptive behavioural, morphological, physiological, biochemical, and molecular strategies used by fish to survive hypoxia exposure and place them within an environmental and ecological context. Second, through the development of a synthesis chapter this book will serve as the cornerstone for directing future research into the effects of hypoxia exposures on fish physiology and biochemistry. The only single volume available to provide an in-depth discussion of the adaptations and responses of fish to environmental hypoxia Reviews and synthesizes the adaptive behavioural, morphological, physiological, biochemical, and molecular strategies used by fish to survive hypoxia exposure Includes discussion of the evolutionary and ecological consequences of hypoxia exposure in fish

Finfish Aquaculture Diversification - M. Jobling 2010

There is considerable global interest in the culture of finfish species both for cold and warm water aquaculture

development and growth. Essential information on the biology, domestication and aquacultural characteristics of a wide selection of novel and established species is provided in the form of technical sheets, species descriptions and information on current rearing practices, making this a must-have reference in the field of aquacultural science. The book also offers a basic framework in order to support investment strategies for research and developement efforts aimed at the emergence of a profitable finfish aquaculture industry and presents a rationale for species diversification, different approaches to species selection and basic economical and market considerations governing the launch of strategic development and commercialization efforts.

Fish Locomotion - Paolo Domenici 2010-01-01

Fish accomplish most of their basic behaviors by swimming. Swimming is fundamental in a vast majority of fish species for avoiding predation, feeding, finding food, mating, migrating and finding optimal physical environments. Fish exhibit a wide variety of swimming patterns and behaviors. This treatise looks at fish swimming from the behavioral and