
Preface

The publication of *The Biology of Sharks and Their Relatives* in 2004 provided a comprehensive review of research spanning the long interval since the publication of Perry Gilbert's classic works, *Sharks and Survival* and *Sharks, Skates, and Rays*. We were satisfied with our range of coverage and with the expertise provided by the authors who contributed to this work. Yet we realized that the volume would necessarily be incomplete because of the breadth of new research being undertaken, the rapid advances in technology that seemed to be opening new avenues for investigation, and the emergence of new investigators who were beginning to explore issues of biodiversity and distribution, physiology, and ecology in ways that have eluded more traditional studies.

To address subject areas and subdisciplines where our coverage was absent or superficial in volume one, we 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.