

control of the systems and supply of as well as the demand for oxygen. The chapter on the central nervous system gives an account, among other things, of the control of motor behaviour and analysis of sensory information. Olfactory, visual and octavolateralis systems are reviewed in the chapter on sensory physiology, including behavioural studies. The fourth chapter is the second largest one, covering muscles and locomotion, locomotor muscle fibres and their physiology, buoyancy and lift of the elasmobranchs as well as swimming aspects. Also, the body form, fin distribution in sharks, kinematics of shark swimming and drag-reducing adaptations are included in the above chapter. The autonomic nervous system is given due attention, ranging from its anatomy to details like chromaffin tissue, branchial and systemic vasculatures, spleen, transmitter functions in the gut, urogenital organs and the iris.

The sixth chapter deals with the rectal gland and its physiology, along with an account of the balancing in euryhaline and freshwater elasmobranchs. The smallest chapter by far is the one on kidney function, covering urea reabsorption, secretion and reabsorption of ions and control of kidney function. Acid-base regulation in elasmobranch fishes, as stated by the author of the chapter on it, is not being principally different from the condition in other fish groups. The last but one chapter reviews nitrogen metabolism of elasmobranchs, including TMAO as well as adaptations in nitrogen metabolism for osmoregulation. The tenth chapter deals with aspects on reproductive physiology of females and males.

The book is enriched with line drawings, microphotographs and tables based on the original work carried out by the authors cited in the text. However, at the end of chapters 2 and 3 there is a section on "Concluding Remarks"; at the end of chapter 8 is a section on "Conclusion"; but at the end of the other chapters there are no such sections. Nevertheless, the book fulfills a long-standing and vital need of bringing together all the major and recent advances in the physiological aspects of elasmobranch fishes and has the advantage of different chapters dealt by different authors. It is worthy of finding an important place in the libraries of fisheries and other related institutions.

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Physiology of elasmobranch fishes, edited by T J Shuttleworth (Springer-Verlag, Berlin), 1988, pp. xii + 324, 685 g, Hard cover, DM 228. [ISBN 3-540-18769-3]

The elasmobranch fishes although not so important and abundant as their teleostean relatives, are considered valuable in many respects. There are a number of books on physiology of bony fishes but literature on this subject on the cartilaginous fishes is scanty. The void is now filled up by the publication of the book under review, which presents a broad and comprehensive account on the vital physiological systems of elasmobranch fishes.

The first chapter on cardiovascular and respiratory systems is the largest one, dealing with functional morphology of the organs, gas exchange,