

The text concludes with informative sections on preventing the development of behaviour problems, legal issues, and the social implications of pets with behaviour problems. In addition, further appendices provide very practical information, such as sources of products, information, and client information texts, although these are understandably mainly relevant to the USA where the author is based.

The author of this text is a well-respected clinician in the field of veterinary clinical behaviour, and this text reflects her extensive knowledge and experience. All sections of the book are extremely well referenced, and the material covered includes the most recent advances in the field, which makes the text a valuable resource for specialists within the field as well as practising veterinarians. The book aims to be both a comprehensive work on the latest research and clinical experience to provide a source of reference for experts within the field, and also a practical text for the veterinarian working within general practice. One could argue that this makes the book too extensive and inaccessible for the latter, but in fact the result is a very comprehensive text, which provides an overview of this veterinary speciality as it stands at this point in time. Hence, the book is a very valuable source of reference, and should be on the shelf of anyone interested in clinical behaviour in dogs and cats.

R Casey  
University of Southampton  
Southampton, UK

### ***Biology of Marine Mammals***

Edited by J E Reynolds III & S A Rommel (1999). Smithsonian Institution Press: Washington. 578pp. Hardback. Obtainable from the publishers, 470 l'Enfant Plaza, Suite 7100, Washington, DC 20560, USA (ISBN 1560983752). Price US\$75.00.

The purpose of this book is to provide students and marine mammal professionals with a textbook on the biology of marine mammals. As such, it is a first, and fills a much-needed niche. The field of marine mammal science has evolved rapidly in recent years, with research material being published not only in the journal of the Society of Marine Mammology (*Marine Mammal Science*), but also in a variety of more specialized journals. Access to information by professionals and students alike has therefore been cumbersome, and it has been hard to get a comprehensive review of many subjects. This book not only provides the student with a concise textbook, but its thoroughness provides the manager and policymaker with a comprehensive reference volume. It is of great value to all those involved in the welfare of marine mammals, as it provides a comprehensive review of the physiological and psychological requirements of these mammals.

*Biology of Marine Mammals* consists of 10 chapters by 22 authors, all well respected in the disciplines they write about. Each chapter takes a comparative approach, reviews the current state of knowledge of the subject, highlights areas for further research, and provides a thorough reference list. Emphasis on different species varies between chapters, depending upon the extent of available data. The range of topics includes those pertaining to the basic biology of marine mammals. Aspects of marine mammal conservation are covered in a companion volume, also from the Smithsonian Institution Press, entitled *Conservation and Management of Marine Mammals*. An unlikely, but welcome, inclusion is the chapter on environmental contaminants in marine mammals. This area of research has become so topical that any student of marine mammology needs a basic understanding of the subject.

The first chapter is an excellent introduction to marine mammals, describing their unifying features. The second chapter gives an overview of the existing morphological solutions to

living in a marine environment. It addresses thermoregulation, drag reduction, buoyancy control, sound production, feeding and locomotion by examining different body systems in turn. The section on thermoregulation of reproductive structures is particularly thorough, and raises issues of potential effects of changes in blood flow on reproduction. The third chapter deals with physiological adaptations to living in a marine environment. It provides a detailed review of adaptations to diving, including both laboratory and field observations, and descriptions of thermoregulation and renal function. Chapter four describes sensory adaptations to the marine environment, with an excellent overview of hearing that includes a superb summary table of reference on marine mammal sound production characteristics. The authors provide details of the physics of sound as well as clear descriptions of anatomy and the evolution of sensory structures in different marine mammal species. Chapter five presents the basic physiological concepts of energy flow in mammalian systems and the ecological implications of energy exchange between marine mammals and their environment. Chapter six on reproduction provides a thorough overview of the many aspects of reproductive biology. By dividing the carnivores and cetaceans, the authors were able to make useful generalizations among genera, and produce useful tables of comparative reproductive parameters. Chapter seven on communication and cognition has an excellent introduction, defending the fact that there is limited knowledge of marine mammal intelligence and that all marine mammals are not necessarily intelligent. This chapter focuses mostly on cetaceans, with little information on sea otters, sirenians or polar bears and is particularly limited on pinniped vocalizations. In contrast, chapter eight gives a comprehensive overview of pinniped, sea otter, cetacean and sirenian behaviour, but with no mention of the polar bear. This topic might be of importance to readers concerned with the welfare of captive polar bears. The author gives precise definitions, clear sections and superb reference charts on reproductive behaviour. This chapter is probably one of the most useful to students of animal behaviour. Chapter nine reviews the distribution, population biology and feeding ecology of marine mammals. Although vast topics, the authors give a thorough but succinct overview of these subjects. The section on distribution focuses primarily on migratory behaviour in phocids, as there are more data for these species. The section on population dynamics touches on the limitations of current population parameters for management and conservation, while the feeding ecology section gives a thorough account of current methodologies with their limitations and advantages. Chapter ten is a general overview of organochlorines and toxic elements, and their effects on marine mammals. The distribution and kinetics of organochlorine levels, recent studies on organochlorine metabolism and biochemical toxicity and the evidence for impacts on health are critically reviewed. Detailed appendices also provide the reader with a key to the primary literature on this subject, which is a rapidly expanding topic.

The wealth of information in this book, together with the comprehensive and critical review of each topic by leaders in the field, makes this book essential reading for all those involved with marine mammals. A good understanding of the biology of a species is a basic requirement for those involved with marine mammal welfare, and this book can serve as both a teaching textbook and reference volume to ensure such understanding. It is currently the most comprehensive yet readable text on the biology of marine mammals, and as such recommended to all potential marine mammalogists.

*F M D Gulland & D Moser*  
*The Marine Mammal Center*  
*Sausalito, USA*