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Book Review

THE WORLD OF WHALES, DOLPHINS, & PORPOISES: NATURAL HISTORY & CONSERVATION. Tony Martin. Voyageur Press, Stillwater, MN, USA. 2003. ISBN 0-89658-579-4, 96 pp., HBK.

In this book on the natural history of whales, dolphins, and porpoises, the author, Dr. Tony Martin, guides the reader through the general biology, distribution, and behavior of cetaceans, often through accounts of his personal field research experiences. The first portion of the book provides a generalized overview of cetacean life history and anatomy, while the second portion is devoted to detailed accounts of taxonomic families of cetaceans. A Fact File is included at the end of the manuscript summarizing the Latin as well as common names of each species and the geographic areas where they are found. It is a great coffee table book boasting spectacular color photographs on nearly every page, many taken by the author. This is a superb book for the general public and a good introductory publication for those interested in pursuing this field of research. Its inclusion of recent research techniques and discoveries makes it an informative and pleasant read for the novice marine mammal specialist as well. In the introduction, the author expresses his desire for the book to "inform, explain, excite and inspire," and all are achieved.

The author, a world-renowned marine mammal biologist with the Sea Mammal Research Unit and British Antarctic Survey in the United Kingdom, has contributed a great deal toward the advancement of this field over the past couple of decades. His wit and inquisitiveness are sprinkled through the book—perhaps too sparingly. More of his personal anecdotes would be a great contribution to any book!

The first portion, "Whales, Dolphins, and Porpoises," includes subsections on "What Is a Whale?" "Form and Function," "Distribution and Migration," "Life History," "Senses," "Voices in the Deep," "Social Behavior," and "Interactions with Man." A good general review of anatomy and physiology of cetaceans is provided, shedding light on topics such as how cetaceans dive to great depths for extended periods of time, and how these mammals avoid the "bends," though recent research may suggest otherwise (Moore & Early, 2004). The distinction between toothed and baleen whales is explained, though a photograph of both, particularly showing baleen plates or contrasting tooth configurations, would have been useful.

The author does a great job emphasizing how rapidly our knowledge is growing in the field through a discussion on the continual change in the number of cetacean species scientifically recognized, nominally through genetic research. Factors that may be affecting distributions are reviewed in a very general manner, as is appropriate for an introductory book. A nice comparison between species living in the Arctic marine waters contrasted to dolphins in tropical, fresh water systems is provided through personal accounts of the author's research projects in both environments, lending a personal touch to the dialog. This might have been a good place to introduce the reader to some of the new tagging techniques being used by researchers in this field—I was disappointed not to hear more of the results of the author's and other's tagging studies, though one cannot cover everything in a single volume.

The "Life History" section presents broad generalizations that again are appropriate for the intended audience, though alternative hypotheses may have stimulated the reader to explore other explanations. For instance, right whale mating strategy could be based on dominant sperm competition, as suggested, or alternatively on female reproductive receptivity being limited to certain time periods, delayed implantation, or some unknown behavioral or physiological mechanisms.

There is a general review of the various senses humans use to experience our environments. Limitations imposed by the marine habitat to the use of sight, taste, and smell are described, and the hypothesis that cetaceans may possess some type of magnetic sense to navigate through their vast environments is presented. The theory that mass strandings may be linked to sites of magnetic anomalies, which may be supported in Britain but has been disputed in other areas, is included perhaps to inspire the reader to consider other sensory mechanisms which may be critical to cetaceans' survival.

A great deal of research is presently focused on issues related to sound in the oceans and their potential effects on marine mammals, which may heavily rely on their sense of hearing for communication, foraging, and exploration of their environment. This is lightly broached in this book,

perhaps due to the dynamic nature of the results to date. Some information could be updated, for instance, by providing a description of how echolocation clicks are made (Cranford et al., 1996) and of video/acoustic systems which have been developed to study vocalizations relative to behavior in wild dolphins (Dudzinski et al., 1995). The author insightfully leaves the reader pondering just what kind of language cetaceans actually use.

The book includes a pleasant mix of the challenges of deciphering cetacean social behavior due to our limitations in viewing and interpreting the underwater environment where most of a whale or dolphin's life is spent, while highlighting intriguing insights into the lives of these marine creatures. New techniques, such as genetic markers, in combination with the well-tried observational and life history studies, are shedding insight into cetacean relationships with and between groups of animals. The author again challenges the audience to ponder why such diversity between cetacean societies exists.

An overview of man's impacts on cetaceans through noise and chemical pollution, fishery interactions, and directed whaling are passionately presented. The author concludes this first section of the book by pondering the ability of cetacean populations to fully recover to pre-whaling sizes in the wake of the industrialized impacts to their marine ecosystems.

The second half of the book is broken into a discussion of eight cetacean groupings, namely "right and gray whales," "rorquals," "sperm whales," "beluga and narwhal," "beaked whales," "marine dolphins," "porpoises," and "river dolphins." A discussion of the physical and behavioral characteristics of each group as well as differences between species within each group is presented through text, illustrative photographs, and anecdotal information. This review provides the novice reader with general information on the taxonomic distinctions between families and subfamilies as well as a basic overview of the distribution and, to a limited degree, population estimates in various parts of the world.

The author shares interesting bits of information for each family which inspires the reader to ponder the interactions of these species among themselves and with their environment. The reader learns that the longevity of bowhead whales has been recorded in excess of 100 years of age; that sperm whales can dive for over an hour to depths of more than a mile; and that, unlike the other cetaceans, porpoises have teeth with a cutting edge. They learn of disparate migratory behavior of humpback whales in the North Pacific Ocean, which breed in separated areas but mix on a common feeding ground off Alaska, in contrast to those in the North Atlantic Ocean, which breed in a common area of the Caribbean then split into widely separated summer feeding grounds. They learn how closely tied beluga and narwhals are to the Arctic pack ice and that genetic evidence demonstrates that killer and pilot whales are actually large dolphins.

The reader is inspired to question why the beaked whale family is as diverse as to include species which range from having no visible teeth to 90 pairs of teeth and to ponder what the function of this dentition actually is. Similarly, the extreme diversity of the families of marine dolphins whose habitats range from warm, offshore waters to freshwater or estuarine habitats inspires the reader to wonder about the relationship between morphological characteristics and habitat use both within and between cetacean families. The author explains that the similarity between species of river dolphins is the result of convergent evolution, with different species adapting independently to similar habitats as opposed to sharing similar ancestry.

The last chapter of this intriguing book relays two field incidents through which the author gained a substantial appreciation for the exquisite skills which cetaceans employ to navigate through their marine environments. In the author's words, "Here was proof of the resilience of whales; given half a chance they will remain an important and valuable part of our planet's diverse fauna." This inspiring and beautifully illustrated book certainly has the potential to encourage many a reader to play a role in providing these incredible marine creatures with such a chance.

Carol Fairfield-Walsh
National Marine Fisheries Service
Southeast Fisheries Science Center
Miami, Florida, USA

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