



The Deep, by Claire Nouvian, 2007, University of Chicago Press, Chicago, Illinois, 256 p., USD 45.00, ISBN-13: 978-0-226-59566-5, ISBN-10: 0-226-59566-8.

For the optimum experience, read this large-format book on a cold, harsh, winter's night to feel the chill and dark of the deep ocean and see the warm coloration and seeming softness of the marine life displayed in the more than 200 stunning images included in the book. The author, Claire Nouvian, is a journalist, producer, and film director, who offers this exploration of deep marine life as a mostly visual experience. The five pages of introductory text are a mixture of factual information about historical and current exploration and exploitation of the oceans with a plea for increased nondestructive investigation and preservation of the virtually unknown ecosystems that inhabit the deep-sea realms. There are 13 two-page essays written by oceanographers from Australia (1), France (1), Germany (1), Japan (1), and the United States (9). The essays cover a variety of topics, including the history of specially designed vehicles for deep-sea exploration, special adaptations of the deep-sea marine life for seeking food and camouflage to avoid becoming food, passive or active means of locomotion, the relation of modern deep-marine life to fossil ancestors, the highly specialized and unpredicted life around methane seeps, hydrothermal vents, and whale falls, and, of course, sharks and sea monsters. These short vignettes are engaging reading, and nearly all continue the thread of the importance of the ocean to the functioning of the planet and our ignorance about it.

The images, only a few of which are computer generated, are the premier attraction of the book, and are appropriately displayed on a black background. On nearly every image is a depth indicator, a short horizontal line that indicates the maximum depth at which the portrayed animal is known to exist. The jacket cover contains a scale, on both the front and back flaps, to allow easy conversion to the sea depth in meters. The images are at different magnifications, but figure captions provide the size of the animal and also often describe an interesting fact about its feeding, reproduction, or survival method. The images are probably the best compilation of deep-sea marine life images in book form, although they are not in any kind of transparent organization. For example, one could not go to a section of the book in order to learn about the diversity of any one animal or group of organisms. As a case in point, squid are portrayed on 14 pages, the first time on page 23 and the last on page 254. The images seem to be arbitrarily presented,

possibly to give the impression of being in a submersible and encountering the creatures as one would *in situ*. Both scientific names and common names of the animals are usually provided in the captions, but the index contains only scientific names, and does not include common names, concepts, processes, or geographic locations. It is unfortunate that images of animals discussed in the chapters are not necessarily found in the same chapter, and it is also unfortunate that the captions for the first three images in the book and the image on the hardcover are located on the last page of the book. My "test readers" and I were all confused by this arrangement and thought at first that these images had no identification. The two sets of double-page spreads with nine images and a single caption were disappointing, because two of the images on one of these spreads were not identified, and four of the images on the second spread were not identified. A short description of the defining characteristics of animal groups (e.g., squid, octopi, ctenophores, jellies, corals, worms, copepods, isopods) would have been a nice addition to the book and made it a better educational tool. The one-page "Deep Sea in Figures" lists some number-facts trivia about the oceans that are very interesting. Note that all units are SI, an issue with some lay audiences.

The layout and typesetting of the book are beautifully done, with some double-page images titled with news-reel typeface that seems to chatter across the page like a transmission from outer space (deep sea) to Earth. The glossary is much too small, requiring nonbiologists to look elsewhere for definitions of terms such as endemism. Some terms are defined in the text and in the glossary (e.g., pelagic); others are only defined in the text (e.g., photophore and Permo-Triassic extinction). This detracts from this book's ability to educate curious readers who are not scientists, as does the use of a term such as siphonophore used first in a figure caption (p. 26) before its definition in a later chapter (p. 103). On the other hand, many of the explanations of the functioning of the marine animals as well as the descriptions of the deep-sea environments are extraordinarily clear and make the point quite compellingly, for example, "At 4000 m depth, the pressure exerted by water on a body is equivalent to a cow standing on one's thumbnail" (p. 110–111). The book also links to popular culture, identifying some marine animals that may have been the inspiration for movies. The one-page

bibliography includes both films and books and serves as a reasonable resource for more information about marine life and ocean exploration.

This book will serve as an excellent supplemental tool for those teaching oceanography, augmenting the sparse images of deep-sea marine life usually included in introductory oceanography textbooks. The responses of more than a dozen nonscientists, ages five years to retired, to whom I showed the book were resoundingly positive, showing that it will serve the purpose of amazing and exciting all ages about the wonders of the deep marine environment. One teenager said it was written in such a way that she wanted to read more. Kindergarten through

grade 12 educators will find this a useful addition to their teaching collection, because it is such a beautiful book that it may act as a stimulus to budding marine biologists and geologists. I plan to show it to students in my introductory-level oceanography class, mostly nonmajors fulfilling a distribution requirement, because I believe it will illuminate the world of the deep ocean just a little bit more, debunking some of the mystery, and yet adding to the mystery at the same time.

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