

Book Review

MARINE PROTECTED AREAS FOR WHALES, DOLPHINS AND PORPOISES: A WORLD HANDBOOK FOR CETACEAN HABITAT CONSERVATION. Editor: Erich Hoyt. Earthscan, London and Sterling, VA, USA. 2005. ISBN 1-84407-064-6, PBK: 39.95 USD; 1-84407-063-8, HBK: 135.00 USD, 492 pp.

Cetaceans, perhaps more than any other group of organisms, are inextricably linked to conservation biology and environmental science. (It's a safe bet that "Save the Whales" bumper stickers outnumbered "Save the Whooping Cranes" over the years.) As such, the evolution of cetacean conservation efforts reflects overall trends in marine environmentalism. One trend is the growing relative importance of marine conservation (vs. terrestrial conservation) over the past few decades. Conservation efforts on land have a longer history (e.g., the first U.S. national park, Yellowstone, was initially protected in 1872) compared to marine conservation efforts (e.g., the first U.S. national marine sanctuary, Monitor N.M.S., was created in 1975). A second trend is the shift from taxon-oriented protectionism (e.g., the U.S. Endangered Species Act [1972] and the U.S. Marine Mammal Protection Act [1972]) to more ecosystem-oriented approaches to conservation (i.e., ecosystem-based management or EBM). In the acronym soup that is part of conservation lingo, "MPA" (i.e., marine protected area) seems to be a relative latecomer to the lexicon of many biologists (compared to such classics as CITES, UNEP, and ESA). The vast majority of MPAs simply did not exist 30 years ago (the first MPA focusing on cetaceans was created in Mexico in 1972 for the protection of gray whales). A book on MPAs for cetaceans could not have been written 30 years ago (or perhaps even 10 or 20 years ago).

Marine Protected Areas for Whales, Dolphins and Porpoises is an especially timely book. The creation of MPAs is hot right now. The author, Erich Hoyt, relates that in the time it took to produce this book, the number of cetacean-relevant MPAs more than quadrupled. While reading about the hundreds of existing MPAs summarized in the book and appreciating the dynamic nature of marine conservation, I was left in awe of the impossibility of Hoyt's task. Nevertheless, he is successful in producing a volume that is authoritative, comprehensive, and up-to-date. The book is divided into five chapters but really is set up

in two parts. The first part, which contains the Introduction and Chapters 1-4 (pages 1-86), is a review of generalized information about MPAs and their application to cetacean conservation. Of particular use in the beginning of the book is a table of acronyms; this table is so useful when using the book that I was tempted to photocopy it to have it handy while reading. The first part of the book also reviews terminology (which can get overwhelming and confusing, especially since the same term might mean different things in different countries), cetacean habitat by species, international treaties and agreements (again with the acronyms!), a discussion of ecosystem-based management and cetaceans, and cetacean conservation in general. The first part functions well as both a text for background reading and as a reference for specific information. (There are many tables and boxes, such as the list of treaties, to which you will want to refer repeatedly.)

The second part and the bulk of the book, Chapter 5 (pages 87-447), is a worldwide review of those MPAs that include cetaceans. Hoyt has organized the MPAs into 18 marine regions, based more on cetacean distribution and movement patterns than on national boundaries. The author provides general information and a map for each region, and usually a case study or two of example MPAs in the region. All MPAs are summarized in tables that provide such information as location and size, cetacean and other notable species within the MPA, "Notes and Rationale" (usually including management history), and literature citations and web links for more information. The text portion of each region makes for informative reading, but the tabular information is what makes this book such a valuable research reference.

MPAs are highly touted, especially among fisheries biologists (Halpern & Warner, 2002); however, as Hoyt correctly points out, and as increasingly noted by marine conservation biologists (e.g., Carr & Raimondi, 1999; Jones, 2002; Hilborn et al., 2004), the management effectiveness of MPAs depends on a host of variables, including design criteria, conservation objectives, biotic and abiotic parameters, and enforcement. Not all MPAs have equal levels of protection. Some MPAs exist in name only, with no attempt to control anthropogenic impacts, while others strictly limit all human activities. Scale is a critical variable. While some no-take marine reserves may

effectively bolster fisheries recruitment to adjacent waters, their impact on cetacean populations is less clear. Many cetacean species are extremely wide-ranging. The movements of whales and dolphins take them in and out of protected areas on a regular basis. Even the largest MPAs, however, are not without design problems and suffer from a lack of scientific data for management decisions (Gerber et al., 2005). Complicating the situation is the international component of the management problem. Cetaceans move from one country's EEZ (Economic Exclusive Zone) (and protection philosophy) to another's with ease, and many species are found on the high seas, beyond the protection of any one nation's management program. International cooperation is necessary and increasingly occurring in the creation of high seas MPAs (e.g., the Southern Ocean Whale Sanctuary). The importance of cetaceans (and other marine predators) to ecosystem-based management is multiplied by the perception of cetaceans as indicator species (Hooker & Gerber, 2004).

Hoyt discusses the challenges facing those involved with the creation and management of MPAs. An initial challenge is to identify critical habitat in need of protection. With cetaceans, critical habitat can be seasonal, spatially dynamic, and/or ephemeral. Despite the explosion of cetacean research in the last 30 years, many questions of a basic nature remain (e.g., Where do northern right whales mate?). Because of user-group conflicts, particularly with commercial shipping and fisheries, conservationists must be judicious in their selection of critical habitat. Other challenges are the development of a management plan and enforcement. An MPA is ineffectual without a management plan, and it is essentially meaningless without enforcement. In my own experience in the Galapagos Islands, it was frustrating watching fishing boats operating with impunity within the marine reserve while the park's one patrol boat remained at anchor due to insufficient funds to buy gas. Enforcement of high seas MPAs is particularly problematic. Signatory nations to international environmental treaties need to express their commitment to such agreements.

I recommend this book to everyone interested in marine mammals and/or marine conservation. In particular, those researchers actively involved with MPAs will find it indispensable. The only downside to the book is that it will quickly be less comprehensive in its coverage as more MPAs are created and more treaties and conventions are enacted. The book will certainly be in need of revision every few years. Given the tremendous amount of work that went into this first edition, I hope Erich Hoyt has enough energy left for subsequent revisions!

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Literature Cited

- Carr, M. H., & Raimondi, P. T. (1999). Marine protected areas as a precautionary approach to management. *CalCOFI Reports*, 40, 71-76.
- Gerber, L. R., Hyrenbach, K. D., & Zacharias, M. A. (2005). Do the largest protected areas conserve whales or whalers? *Science*, 307, 525-526.
- Halpern, B. S., & Warner, R. R. (2002). Marine reserves have rapid and lasting effects. *Ecology Letters*, 5, 361-366.
- Hilborn, R., Stokes, K., Maguire, J.-J., Smith, T., Botsford, L. W., Mangel, M., Orensanz, J., Parma, A., Rice, J., Bell, J., Cochrane, K. L., Garcia, S., Hall, S. J., Kirkwood, G. P., Sainsbury, K., Stefansson, G., & Walters, C. (2004). When can marine reserves improve fisheries management? *Ocean & Coastal Management*, 47, 197-205.
- Hooker, S. K., & Gerber, L. R. (2004). Marine reserves as a tool for ecosystem-based management: The potential importance of megafauna. *BioScience*, 54, 27-39.
- Jones, P. J. S. (2002). Marine protected area strategies: Issues, divergences and the search for middle ground. *Reviews in Fish Biology and Fisheries*, 11, 197-216.