

Shifting Baselines: The Past and the Future of Ocean Fisheries.

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The Marriage of History to Ecology

Shifting Baselines: The Past and the Future of Ocean Fisheries. Jeremy B. C. Jackson, Karen E. Alexander, and Enric Sala, eds. Island Press, 2011. 284 pp., illus. \$35.00 (ISBN 9781610910019 paper).

Shifting Baselines: *The Past and the Future of Ocean Fisheries* is an attempt to investigate the feasibility and relevance of the idea introduced by Daniel Pauly of the University of British Columbia in his 1995 seminal paper “Anecdotes and the shifting baseline syndrome of fisheries.” This book is a collection of articles based on a conference held in 2003 at the Scripps Institution of Oceanography, and it claims to use a “historical perspective to determine the true magnitude of decline and the challenges for sustainability in the future.” Its overall objective is to show “how new perspectives on the past can alter our understanding of oceans today and change the future for the better.” The book first defines the problem—what we lose without marrying history to marine ecology—and then describes the many challenges of joining these two perspectives. Two sets of case studies are presented (one on sardines and anchovies, the other on cod), then a discussion follows on the methodologies used in historical marine ecology in all their variety and complexity and including their strengths and limitations. The book concludes by describing how *historical ecology* is, or could be, used today.

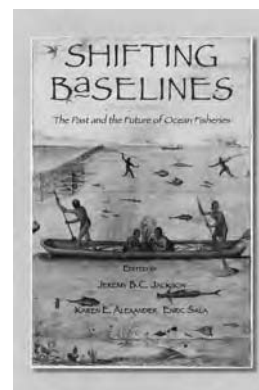
Shifting Baselines is decidedly more than a book on fisheries management. Edited by Jeremy B. C. Jackson (director of the Center for Marine Biodiversity and Conservation at the Scripps Institution of Oceanography in California), Karen E. Alexander (a historical fisheries scientist at the University of New Hampshire), and Enric Sala (head of National Geographic’s global

marine conservation initiative), the book’s contributions are broad in scope—from history and archaeology to marine biology and oceanography. Twenty-four authors bring their expertise to the relevant issues at hand, treating Pauly as a sort of godfather. The text is generally easy to read and conveys plenty of enjoyable insights from the authors’ professional and personal experiences (e.g., Safina’s lifelong relationship to Long Island, New York), making the book more introspective than most scientific volumes.

The value of the book resides foremost in its overall argument in favor of marrying history and ecology to study ocean fisheries management. The argument is well grounded, thorough, and illustrated. The book also provides numerous golden nuggets of information of historical depth within its pages. For example, Bolster and colleagues remind us in chapter 6 of how cod-fishing subsidies in New England were originally aimed at maintaining a capacity that would otherwise disappear: The fishing fleet was a nursery for seamen in case of future wars. The result is a book that is instrumental in raising awareness of the need to pay attention to history.

Shifting Baselines does have some weaknesses, however. First, although each chapter is valuable and although the introductions to each section add to the book’s coherence, the finished product still seems too much like a compilation of seminar papers. It is also a pity that the conference on which the book is based dates back to 2003, and no explanation is provided as to why there was such a delay or whether the research is still up to date. Second, limits to the approach are addressed, but their consequences are not clearly discussed. Is the knowledge produced by historical research robust enough to be tabled in international or stakeholders’ negotiations? Such a question

seems crucial for historical approaches that push the boundaries of ecological science. As Palumbi states it in chapter 9, there is “danger in using these data to answer questions for which they were not designed” (p. 163).



Another shortcoming of the book is that it does not provide a clear and synthetic discussion about why baselines should actually be shifted. What exactly can we do differently by knowing more about the past? Admittedly, the book does not ignore this issue. It is actually the purpose of the last section (“From fisheries management to ecosystems”), dedicated to “how... history [should] influence marine science, how... science [should] influence marine policy, and how... science and history leverage each other to greater effect” (p. 176). In chapter 11, editors Sala and Jackson, for example, show how the history of the bluefin tuna stock tells us that no fishing can be sustainable today (p. 195). But some examples are less explicit: In chapter 10, Rosenberg and colleagues report on thought-provoking management cases but are nevertheless unclear about the exact role that historical analysis plays (e.g., in whales and seals management; p. 188).

Dozens of partial reasons are given as to why baselines need to be shifted, but there is no synthesis that unifies

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them: because historical baselines are needed to move beyond maximum sustainable yield (Jackson and Alexander, p. 3) and redefine targets in fisheries management (Bolster and colleagues, p. 103); because historical ecology helps combat the “collective amnesia that allows policymakers to commit the same errors over and over again without any clear awareness of how similar courses have proved disastrous before” (Vickers and McClenachan, p. 123); because “we cannot effectively restore degraded marine populations, communities, or ecosystems without historical baselines to use as reference points” (Lotze and colleagues, p. 137); because “together, knowledge and imagination give us back what is lost in living memory: a long-term vision of the history of nature and of ourselves.... We can use that vision to question our actions and their consequences for the ocean and to rethink and redirect our path into the future” (Lotze and colleagues, p. 161); because “the International Whaling Commission received a global mandate to monitor the current state and determine the past condition of whale populations in order to manage hunting in the future” (Palumbi, p. 165); because “history can provide a working model and act as a bridge between stakeholders who are often at odds” (Rosenberg and colleagues, p. 190); because “the concept of shifting baselines helps to neutralize denial” (Jackson and Alexander, p. 205).

Such a heterogeneous inventory has an advantage: Every reader can find an interest in the shifting baselines concept. It also makes it look too much like a Swiss Army knife—with many tools for many purposes—but apparent contradictions within the book are not addressed. Lotze and colleagues underline “that past... was ever changeable so that our baseline for comparison depends on when we choose to measure it” (p. 137). Rosenberg and colleagues assert that “frankly, managers have had enough of a struggle trying to reverse the downward spiral of fish stocks, let alone rebuild fully functional ecosystems” (p. 179) and

further remind us that “elected officials respond to the political pressure of the loudest voices engaged in an issue” (p. 181). Then how exactly is historical ecology supposed to be used? The point is not to question the fundamental interest of marrying ecology to history; *Shifting Baselines* offers a wealth of viewpoints, examples, and methodologies that make it an important milestone toward this end. However, a more elaborate concluding chapter discussing apparent internal contradictions and bringing a more coherent argument for the reader to take home would have been welcome.

An unfortunate characteristic of the book must be mentioned: Seventy pages of detailed and well-documented notes are neither numbered nor called out in the text. This issue may be corrected in later printings, but it considerably hampered the scientific robustness of the text I had in my hands. It also does not prevent reading and enjoying the book, but it will raise considerable frustration, especially for students and researchers.

Having said that, *Shifting Baselines* is a stimulating and necessary volume for anyone interested in the issues surrounding marine conservation, ecosystem-based management, or how societies may set ambitious but realistic targets for biodiversity. Shifting baselines in fisheries management will also meet concerns in other fields of environmental management, where scientists and authors have already demonstrated how history changes the way we see current action, as well as future opportunities and constraints—a perspective that remains too often marginal in the biodiversity conservation arena.

Reference cited

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DISTURBANCE AT THE CENTER OF ECOLOGY AND HUMAN LIVES

The Biology of Disturbed Habitats. Lawrence R. Walker. Oxford University Press, 2012. 360 pp., illus. \$59.95 (ISBN 9780199575305 paper).

In *The Biology of Disturbed Habitats*, readers will find a pithy but well-balanced review of the relevant research on ecological theory, but disturbance ecology is the focal point throughout the book. In reading, we view the whole of ecology through the lens of disturbance—as a modulator of biodiversity, ecosystem processes, and stability. I do not know of any previously published work more comprehensive in its inclusiveness of the types of natural and human disturbances, in spatial and temporal scales, within aquatic and terrestrial ecosystems, affecting both plants and animals. The interplay between the natural and anthropogenic disturbances and how they affect human use of the environment and sustainability is the book's key component. The statement “To survive, humans have adapted to disturbances that we cannot manage and manipulated those we can” (p. 211) captures its essence.

Author Lawrence R. Walker, a professor of plant ecology at the University of Nevada and a published writer of many classic papers, has addressed this book to ecologists, naturalists, and land managers. The prose is straightforward and readable by an audience with a wide array of specialties. Although the subject matter is vast, the book narrows in on the specifics with illustrative examples of disturbance within various ecosystems, showing how the small observable details fit into the much larger concepts. Tables and conceptual diagrams summarize major points, making the book useful for teachers who wish to introduce students to the variety of processes and effects of disturbance. I found the tables that show the chronological development of ecological concepts