BioOne COMPLETE

Seasick: Ocean Change and the Extinction of Life on Earth

Author: Nash, Steve

Source: BioScience, 60(8) : 657-658

Published By: American Institute of Biological Sciences

URL: https://doi.org/10.1525/bio.2010.60.8.19

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/BioScience on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

including glacier-fed streams and alpine lakes, was virtually absent, apart from a brief description of "life in troubled waters" (about glacial rivers, though it sounds like a Simon and Garfunkel song) and a brief mention of the effects of ultraviolet-B radiation on crustaceans in alpine lakes. The authors state that "the biology of alpine freshwaters is discussed in detail in specialist texts," but they provide no references, and thus lose the opportunity to fully examine the linkages between terrestrial and freshwater ecosystems in alpine habitats. This is unfortunate, because streams have important influences on soil moisture as well as on carbon and nitrogen fluxes.

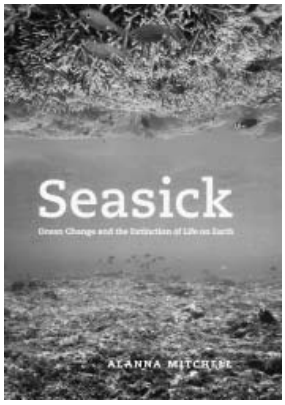
That said, the book definitely fulfills its goal with regard to terrestrial alpine habitats. Its strength lies in how it synthesizes the major driving variables, which include elevation gradients, energy and climate, landforms, and hydrology and soils, while also examining the responses of community types and assemblages, including their biogeography, adaptation, and evolution. The paperback will appeal to students interested in or taking courses involving alpine habitats as well as to professionals looking for an introduction to this environment.

ALEXANDER MILNER
Alexander Milner (A.M.Milner@bham.ac.uk) is with the School of Geography, Earth and Environmental Sciences at the University of Birmingham, United Kingdom.

TOO LITTLE, TOO LATE?

Seasick: Ocean Change and the Extinction of Life on Earth. Alanna Mitchell. University of Chicago Press, 2009. 176 pp., illus. $25.00 (ISBN 9780226532585 cloth).

Seasick: Ocean Change and the Extinction of Life on Earth is intended to alert or, better said, alarm the public about a host of grave assaults on the world's oceans. It joins other recent books whose titles also tread unsubtly. A sampler: *The End of the Line: How Overfishing Is Changing the World and What We Eat; The Empty Ocean; The Unnatural History of the Sea; Ocean Bankruptcy: World Fisheries on the Brink of Disaster.*



Scientists who write or become sources for such books feel an accelerating sense of urgency that overmasters what climatologist James Hansen has called the habit of "scientific reticence." A few, such as Hansen or the redoubtable Scripps marine biologist Jeremy Jackson, pursue public advocacy. As conditions worsen, these scientists' numbers may swell, despite a long list of professional disincentives.

Many others feel enough confidence to at least hazard some candor about the significance of their results, one on one, when speaking to the right journalist. *Seasick* benefits from several such encounters. In symposia or other professional settings, as author Alanna Mitchell writes at one point, "There's a question no one wants to deal with: is all of this research too little, too late?" She asks it—frequently—and focuses sharply.

- Ecosystem modeler Jerry Blackford's data augur that by 2050, for example, ocean acidity will be higher than it has been for 20 million years. Mitchell sums up: "The oceans' lifeforms will be disconnected from their own evolutionary heritage."
- Twenty percent of the world's coral reefs have been destroyed and 50 percent are "in trouble." Eighty percent of Caribbean corals are dead. For one international project out to collect genetic samples—Noah-like, lest they disappear—corals are the "most urgently endangered group of species known of in the world."
- There are now about 400 hypoxic "dead zones" in the oceans; this figure has doubled each decade since 1960, and a report by the United Nations Environment Programme says their number is "poised to escalate rapidly," threatening the whole global fishery in this century.
- Then there's global warming…

It may seem remarkable that oil spills did not make the list, given what's occurred in the Gulf since *Seasick* was published, but that is not a serious omission on the author's part. It is, rather, a reminder that the threats are probably too many to be treated in one book, and that some seemingly stable, back-burner ocean stressors can suddenly veer toward catastrophe.

That the oceans are threatened will not be news for conservation biologists. Nor can *Seasick* serve as a source of research data. Mitchell is a mainstream journalist, until recently a science reporter for the *Toronto Globe and Mail*, and the book is written for a general audience. So the question becomes: Does her book have value for scientists?

I think yes, for a couple of reasons. For some, who may be holed up within their research niches, it offers a well-integrated interdisciplinarity, if at a general level. Mitchell uses a wealth of published research, her extensive interviews, and personal observations to lay out the dire synergies of global warming, ocean acidification, overfishing, and dead zones.

Another positive feature of the book may seem off-putting at first: This is a personal odyssey, deeply engaged.

doi:10.1525/bio.2010.60.8.19

Downloaded From: https://complete.bioone.org/journals/BioScience on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Mitchell recounts the tics and foibles of her scientist sources, often world-class researchers in their fields. She may be a bit starstruck at times—too many sources are labeled "brilliant." Far more important: She makes it obvious early on that she is struggling to keep her emotional balance under successive waves of terrifying—her word—research about the nearing fate of the world's oceans.

It becomes clear that this is not self-involved melodrama but an indispensable context for the research, and several of the scientists whom she accompanies show the same anxiety. The conservation agenda has moved with breathtaking speed, after all, from individual species, to ecosystems, to biomes, to global climate and the oceans. Depression has become for some scientists an occupational hazard as the subject matter of their research—coral, for example—is extinguished. An empath, Mitchell is able to draw out her sources' reactions to their own findings, and their implications for the future, in terms that engage the reader below the neck.

A sample: "Once they figured out how low the carbonate ion concentration would fall if carbon dioxide concentrations in the atmosphere kept rising, they realized they were looking at a marine Armageddon," Mitchell recounts.

One researcher, Joan Kleypas, "ran into the bathroom outside the committee room and threw up."

On global overfishing: "We don't realize how absolutely exceptional this time is.... We are at the stage of losing the ability of things to come back on their own," Dalhousie University biostatistician Boris Worm tells Mitchell. "I'm absolutely hopeful," he adds. "I would be suicidal if I weren't hopeful."

Michael Kendall, of the Plymouth Marine Laboratory in England, trying to crack the bemused, detached ineffectuality at a marine management conference, tells his audience: "All these changes have happened before, but never, ever as rapidly. These are the fastest broad-scale changes the marine system has ever experienced." He is almost pleading with them at the end: "We can't just sit on our hands and wait."

Mitchell also pursues the sources of hope, the researchers' "coping strategies" in the face of the accumulations of unnerving data. It is well for shell-shocked scientists to defend their optimism; hopeless is useless. "The ocean contains the switch of life," as Mitchell concludes, "and that the human hand is on that switch, is a concept on the frontier of scientific thought."

Along with keeping her own hopes together, Mitchell has reportorial challenges that face all environmental journalists—how to recount credibility-enhancing but granular details of research without the narrative trailing off into the weeds; how to explore an issue by focusing on just a few researchers while doing justice to dissenting interpretations or contradictory research findings, and keeping them all in proportion.

These are handled adroitly. Though her conclusions are necessarily subjective at times, they're also frank in their indeterminacy—"We don't know what's going to happen" is a frequent refrain. The story's power, and urgency, are hyper-audible.

STEVE NASH

Steve Nash (snash@richmond.edu) is an associate professor of journalism at the University of Richmond, Virginia. Nash also reports and comments on environmental issues in various journals, magazines, and newspapers around the United States. His book Millipedes and Moon Tigers: Science and Policy in an Age of Extinction *was published by the University of Virginia Press in 2007.*

SEASONAL TIMING OF LIFE AND DEATH

Seasons of Life: The Biological Rhythms That Enable Living Things to Thrive and Survive. Russell G. Foster and Leon Kreitzman. Yale University Press, 2009. 320 pp., illus. $28.00 (ISBN 9780300115567 cloth).

This book, *Seasons of Life: The Biological Rhythms that Enable Living Things to Thrive and Survive*, is Russel G. Foster and Leon Kreitzman's second on the subject of biological rhythms. The first, *Rhythms of Life* (2004), dealt with the role of circadian (daily) rhythms in programming life-cycle and physiological events; the current volume extends this discussion to seasonal cycles, in particular circannual, or yearly, rhythms. Foster is a professor of circadian neuroscience at Oxford University, specializing in the molecular and neurobiology of



biological timing, and Kreitzman is a science writer and broadcaster. The book is appropriately dedicated to the late Eberhard Gwinner, who discovered circannual rhythms in birds and elucidated their role in the seasonal cycles of breeding and migration. This is not an advanced biological treatise, but rather an up-to-date summary aimed at readers with some biological background.

Seasons of Life is really two books. The first several chapters address seasonality and circannual rhythms in plants and nonhuman animals. The last several deal with human biology, from the influence of seasons on birth and lifespan to the seasonality of disease, both obvious (influenza in winter) and more subtle (breast cancer in spring). Although readers of *BioScience* probably won't find much new biology in the first part of the book, the story is well told and could serve as a

doi:10.1525/bio.2010.60.8.20

Downloaded From: https://complete.bioone.org/journals/BioScience on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use