# Making Yourself Clear: The Conversation of One

**Science Communication: A Practical Guide for Scientists.** Laura Bowater and Kay Yeoman. Wiley-Blackwell, 2013. 384 pp., illus. $49.95 (ISBN 9781119993124 paper).

**What Editors Want: An Author's Guide to Scientific Journal Publishing.** Philippa J. Benson and Susan C. Silver. University of Chicago Press, 2012. 192 pp., illus. $20.00 (ISBN 9780226043142 paper).

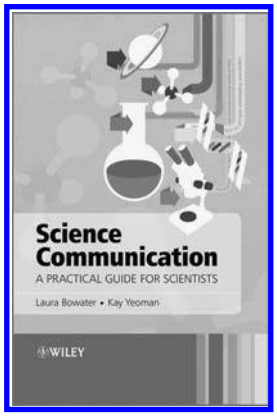
**Scientific Communication for Natural Resource Professionals.** Cecil A. Jennings, Thomas E. Lauer, and Bruce Vondracek, eds. American Fisheries Society, 2012. 180 pp., illus. $35.00 (ISBN 9781934874288 paper).

> If you choose not to communicate what you do, your work will be increasingly irrelevant. Even worse, you will condemn the rest of us to receive information from sources who may be ignorant or who choose to distort and misinform for their own gain. (Carl Safina)

Almost 5 years have gone by, but I still recall the disbelief I felt when CNN, the Cable News Network, eliminated its entire science, technology, and environment news staff. As a former science journalist, I saw that extinction event as a milestone in US journalism's long disinvestment in covering science. As newspaper science sections folded across the country and network science coverage shrank from small to nanoscale, many science reporters drifted away, like polar bears in a warming world. The challenges of the digital revolution helped end an era, driving old-school media into a suicidal frenzy of cost cutting and profit maximizing; science coverage was a prime victim. At the same time, the digital revolution that helped end that era was also creating a new world, full of new ways for scientists to communicate with the public and with each other. It is now a world in which researchers find collaborators on Twitter, and instant peer review takes place on blogs and within comment strings. It is a world in which anyone with an Internet connection can eavesdrop on conferences, browse genomic databases, watch wildlife cams, play protein-folding games, and learn fascinating "facts" that may or may not be true.

For better or for worse (and I believe it to be mostly better), scientists have more ways—and more reasons—than ever to convey why science matters. Where I work, at the Alan Alda Center for Communicating Science at Stony Brook University, we run communication courses and workshops for scientists around the country, and we continually hear the varied reasons that scientists sign up to take them: to become stronger competitors for fellowships, jobs, and grants; to become better teachers; to become more accountable to the public that pays the bills; to publish better articles in higher-impact journals; to connect with potential collaborators in other disciplines; to improve public decisionmaking; and, maybe, to save humanity. Scientists tell us that they want to counter dangerous misconceptions, to inspire young people, and to understand their own work more deeply by learning what it means to other people. Some say their goal is modest: to be able to explain to their relatives at Thanksgiving exactly what they do and not see their eyes glaze over. Like reasons to communicate, books about science communication are proliferating, and they approach the topic from very different angles.

*Science Communication: A Practical Guide for Scientists* appears from its title to be a book of great promise—one that is focused on helping scientists communicate with the public—and it *is* a good-natured, information-packed text about how to conceive, plan, execute, and evaluate science engagement or outreach activities—in the United Kingdom. Authors Laura Bowater and Kay Yeoman (both affiliated with the University of East Anglia) and all but one of its 34 contributors are from the United Kingdom, and virtually all of the resource lists, history lessons, school regulations, agencies, panels, grant programs, acronyms, and case studies that appear within its teeming pages are based in the United Kingdom, where science communication is far more developed and institutionalized as a discipline than it is in the United States.




The book contains a historical summary, complete with theoretical underpinnings, including the conceptual evolution of the field in the United Kingdom, from scientific literacy to the public understanding of science and public engagement with science and technology (with their unfortunate acronyms PUS and PEST). It discusses school demonstrations, the lecture series, blogging, science cafés, and the art of outreach to policymakers and includes detailed descriptions of interactive science activities that could be duplicated or adapted,

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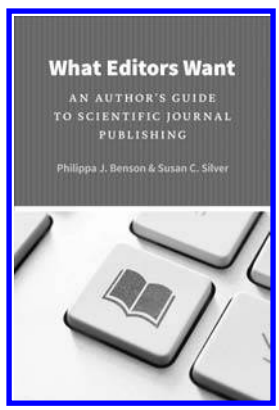
as well as a useful 27-page chapter on monitoring and evaluating such activities. For those more invested in the field, the book also offers nuggets such as a link to the SMOG (Simple Measure of Gobbledegook) index, which can help us judge how easily comprehensible our writing is.

Among US readers, I think *Science Communication* will appeal mostly to those who are seriously interested in the endeavor as an academic discipline or as a vocation rather than to scientists who want to improve their skills or interact a bit more with the public, the press, or policymakers. For the American context, several excellent books are available, including Nancy Baron's *Escape from the Ivory Tower: A Guide to Making Your Science Matter* (reviewed in 2011 in *BioScience* [61: 239–241]), Cornelia Dean's *Am I Making Myself Clear? A Scientist's Guide to Talking to the Public*, Dennis Meredith's *Explaining Research: How to Reach Key Audiences to Advance Your Work*, and Marc J. Kuchner's *Marketing for Scientists: How to Shine in Tough Times* (reviewed in 2012 in *BioScience* [62: 998–1000]).

Whereas *Science Communication* is a sprawling encyclopedia of outreach, *What Editors Want: An Author's Guide to Scientific Journal Publishing* is a sharply focused manual for navigating the mainstream of academic publication. With an easy authority and relatively few citations, authors Philippa J. Benson and Susan C. Silver present advice on how to publish—rather than perish. It is hard to imagine a science graduate student whose career would not benefit from reading this book. Although veteran authors may find some of its contents to be obvious, the text may also prove to be a useful tool for reviewing their practices and possibly improving their customary way of doing things.

Benson and Silver start by offering insight into the thinking process of journal editors, urging would-be authors to see their own work through editors' eyes. The book's perspective, after all, is from the receiving end of effective communication, because it is the editors who are an author's first—and often most troublesome—audience. This is not a volume about research design. Instead, it methodically addresses a range of issues related to publication—from new approaches to keeping up with the literature, such as CrossRef and the DOI (digital object identifier) system, to the age-old problem of responding to rejection. Along the way, the authors discuss how to choose a journal, the conventions and ethics of authorship, what to include or exclude in a cover letter, and the expectations of peer review. Both Benson and Silver have worked as science editors, which gives them credibility on how the preferences and practices of editors differ, and they provide more than a dozen sidebars by experts, such as a primer on open-access publishing by Catriona MacCallum, senior editor of *PLOS Biology*.




According to the authors, *What Editors Want* grew out of workshops that they conducted in China. Not surprisingly, then, the book offers advice specifically for scientists who are nonnative English speakers, such as a 2-page sidebar on how to choose a "language-polishing" service. Many English-language journals encourage nonnative speakers to use outside editing services before they submit papers; some refer authors to particular companies that may offer a discount. Benson and Silver note that when colleagues help with this kind of editing, they may merit acknowledgment or, possibly, coauthor credit. The idea of providing credit for paid editing services, however, is not addressed.

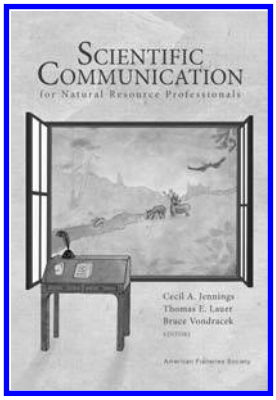
Although the main text is only 153 pages long (the rest consists of resources, an index, and a checklist), it can get repetitious. At least four times, the book instructs readers in how and why to find, read, and carefully obey the instructions to authors that journals post on their Web sites or within the journal's pages. After a while, a reader may feel that the book should have been subtitled "Just read the damn instructions already."

A different approach to some of the same issues, plus additional topics beyond journal publication, can be found in *Scientific Communication for Natural Resource Professionals.* This collection of 14 chapters by 26 authors, many of whom are fisheries biologists, is edited by Cecil A. Jennings, Thomas E. Lauer, and Bruce Vondracek. When compared with *What Editors Want*, the language is drier, and the approach is more academic. Citations abound, including those for statements that seem self-evident. For instance, the statement "Presentations help to expand one's curriculum vitae or resume" carries citations to two sources.

As in *What Editors Want*, readers are given information on determining authorship, selecting a journal (covered here in two separate chapters), and responding to peer review. In addition, *Scientific Communication* includes chapters on designing tables and figures, converting a dissertation into a journal article, giving a poster or oral presentation, writing a review paper, reviewing a paper for a journal, and even using e-mail and the telephone ("When making outgoing calls, know what you want to discuss"). True to its title, the book's examples, resource lists, and specific suggestions give prominence to the field of natural resources, and unfortunately, there is no index.

A chapter called "Fishing the deep Web: The search for information," by Linda Eells, Ruth Vondracek, and Bruce Vondracek, offers many helpful search suggestions and lists of databases and

indexes to help researchers find information that does not easily rise to the surface. They discuss, for instance, *gray literature*—documents that are neither commercial nor academic, such as working papers, fact sheets, and conference proceedings from public agencies and nongovernmental organizations.




A standout chapter is entitled "Integrating statistical methods and results into your writing," by James R. Bence and Daniel B. Hayes. These men have a mission: to see that researchers present relevant statistics in ways that actually convey their meaning to the intended audience ("Do not assume everyone took the same statistics methods course that you did"). Again and again, they stress the need to convey meaning, not merely to jump through statistical hoops, and they suggest different ways to achieve that aim. This chapter is one of the few in the book that is focused primarily on content, rather than on format or technique. Reading it would benefit many scientists, especially those beginning their career. Bence and Hayes are not just giving advice but making an argument; as a result, their prose has a welcome energy and directness.

By contrast, the chapter on "Style, usage, grammar, and punctuation" tries to cover so much ground that it becomes a dense thicket of *do*s and *don't*s, with page after page of sentences such as this one: "Replace the adverbial form of *likely* with *probably* unless it is preceded by an intensive (e.g., very, more, most)." Of course, different people learn in different ways, but in my experience, large doses of this kind of instruction are hard to absorb. It might have been wiser to call attention to a few key points and to express them more memorably. For the rest, scientists would do well to consult the classics on clear writing, such as Strunk and White's *The Elements of Style* and William Zinsser's *On Writing Well*.

Communicating clearly and vividly about science requires a complex set of skills, like playing Chopin on the piano. People tend to think that it is easy—after all, haven't they been talking almost all their life?—but anyone who has sat through a day of stupefying PowerPoints knows that communicating science is not like asking someone to pass the salt. For most people, it is hard. Books such as these can help, but it also takes practice and feedback. Perhaps most important, it takes empathy and an imaginative leap—to see the world through your audience's eyes. (What do they know? What do they need? Did they get my message? What message are they sending back to me?) Communication is always a conversation, even when only one person is speaking or writing. Today, scientists can join this conversation in a thousand ways. Those who make the leap often discover that it brings them joy—and insights they would not have had if they had kept speaking only among themselves.

ELIZABETH BASS

*Elizabeth Bass (elizabeth.bass@stonybrook.edu) is the director of the Alan Alda Center for Communicating Science, at Stony Brook University, in Stony Brook, New York. She develops and teaches courses and workshops for scientists in communicating with the public. Earlier in her career, she was a science and health journalist and university journalism instructor. She is coauthor of the book* Bioterrorism: A Guide for Hospital Preparedness *(2005, CRC Press).*