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contributing to modern sea level rise. The chapters cover the difficulties in modeling and quantitatively explaining observed twentieth-century sea level rise. The book deals with how sea level rise will affect society and even provides recommendations for climate change

mitigation and suggestions for planning adaptations to reduce the impacts. The editors suggest that the book is intended to complement the Intergovernmental Panel on Climate Change (IPCC) scientific assessments—it does much more than that!

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## Escape from the Ivory Tower: A Guide to Making Your Science Matter

By Nancy Baron, Island Press, 2010,  
240 pages, ISBN 978-1597266642,  
\$27.50 US (softcover)

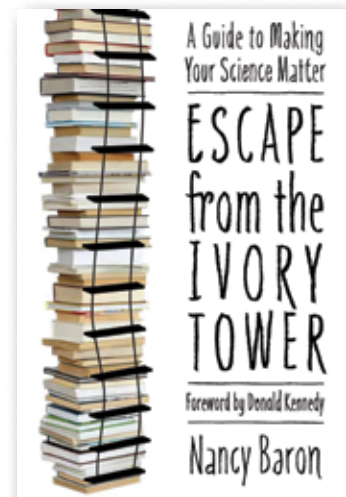
REVIEWED BY JONATHAN H. SHARP

Nancy Baron, the communications specialist for COMPASS (the Communication Partnership for Science and the Sea), wrote the book reviewed here, giving it the subtitle of “A guide to making your science matter.” The last two words in the subtitle are critical and were also used in a special evening panel at the 2008 Ocean Sciences meeting—there, our subtitle was “does science really matter?” We, as environmental scientists, can be dedicated to our research and teaching, and be passionate about their importance to society. But, maybe our science *does not really matter* unless we can communicate our findings and their importance to the general public and decision makers.

Baron is a trainer of scientists, teaching them how to communicate with the public, both at COMPASS and through the Leopold Leadership Program. She cites the activities of

some of our scientific peers who have successfully communicated information about critical environmental problems to the public on a national level. She has worked with many of them as well as the better-known environmental journalists. Her book has interesting personal anecdotes and stories about established research scientists who have made the leap from the “ivory tower” to public communication. It also has advice from some of the environmental journalists.

Following an introductory discussion about scientists deciding to speak out, Baron provides a section about the differences between the cultures of research scientists and journalists and policymakers. It is very important for any scientist who wants to effectively bring the results of his/her work to the attention of the public to understand these cultures’ differences. Too often, we forget that most of the rest of the population does not have our scientific backgrounds, and thus is starting from a different perspective in understanding our work. Early in the book, Baron says: “If you decide you want to inform



those outside your research arena, and help guide public discourse, you will need to learn a new set of skills. These include knowing exactly what you want to say, understanding your audience, and using common language to get your main point across.”

The author’s third part offers several chapters as a “how-to tool kit.” They address how to deliver a clear message as well as how to prepare to be interviewed by a journalist, and they explain the differences in message delivery between print, radio, and television. Baron also addresses the idea of the scientist reaching out rather than waiting for a request from the media. I will discuss separately the subjects of the scientist

instituting the communication, promotion of a paper, and entering the political fray, along with the next to last chapter about backlash. First, a discussion of the different cultures and the tool kit.

In the second and third parts of the book, a vital point is that it is essential to have a story line. Too often, environmental scientists (and apparently other technical experts) try to enlighten members of the public by flooding them with data rather than explaining with simply laid out information. This same point is central in *Don't Be Such a Scientist* by marine biologist-turned-Hollywood-filmmaker Randy Olson (reviewed in *Oceanography* volume 22, number 4, in 2009) and in the book *Resonate: Present Visual Stories that Transform Audiences* by design-firm owner Nancy Duarte. Presentation is so important.

As scientists, we are used to communicating to a group of peers who are also passionate about and interested in the same subject matter. Even if the research is somewhat outside one's individual specialty, we find science fascinating. In communicating to the public and decision makers, the predisposition of interest in the subject is not necessarily there. In several places in the book, Baron indicates that a journalist or decision maker would initially be asking "why are you telling me this?" or "why should we care?"

Two aspects that are very critical in communicating outside our normal culture are how to quickly capture the interest of the audience and how to present information as a story. The following subsections in Chapter 8 ("Deliver a Clear Message") provide approaches to these two critical aspects:

So what? The message box. Support your message. Framing the argument. Making your message memorable. Know your headline.

If a journalist interviews you, you may have a more patient audience and receive some guidance to get you to the point. If you are communicating with a busy policymaker or the general public, you need to grab the person's attention very quickly. I remember vividly briefing the lieutenant governor of my state years ago on an environmental issue. My careful attempt to present the background of the issue was interrupted by his "get to the bottom line." He didn't want a lecture from a professor, he wanted to know why I was sitting in his office taking his precious time. Baron points out that scientists want to know "how does the world work?"—but policymakers have to answer the question, "what should we do?"

It is challenging to boil down your message to make it brief and compelling. The book offers quotes from environmental journalists as well as other communicators, including this great comment from Mark Twain: "If you want me to give you a two-hour presentation, I am ready today. If you want only a five-minute speech, it will take me two weeks to prepare." This statement is so true. You should not overload your audience with extensive data, but rather distill out the essence so that it is informative and interesting. However, in doing this, it is critical that you do not sacrifice accuracy.

Baron leads into one chapter with a wonderful quote from Joseph Pulitzer, aimed at journalists, but equally important for anyone really wanting to communicate: "Put it before them briefly

so they will read it, clearly so they will appreciate it, picturesquely so they will remember it, and above all, accurately so they will be guided by its light."

Baron also points out that information needs to be presented in ways that are *simple*, but not *simplistic*. In this and in Olson's book, there is strong emphasis on making presentations brief and clear, yet accurate. The message is not to "dumb down" the science, but also not to make it numbingly tedious.

Much of the book deals with information that should be read and taken seriously by many, if not most, scientists. We can all improve our outreach, especially on the local level, such as by giving talks at local service clubs and in middle schools and high schools, writing letters to the editor and op-ed pieces for local newspapers, and responding to questions from reporters or elected officials. Today, many younger scientists are offering short videos on their Web sites and posting information on blog sites. The research from the scientific community is too important for us to hide it in the ivory tower. Almost everyone should make some, at least small, efforts to communicate with broader audiences. However, some humility is needed. Much of this communication should probably focus on interpreting bigger science subjects rather than only on one's own research. Also, we cannot all be major spokesmen to audiences beyond the local level. Graduate students and beginning professional researchers can all have impact, but it may be necessary to consider a level of authority for communication to more universal audiences. It is almost certain that anyone playing in the public arena will provoke backlash from vested interests and public

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naysayers, something that must simply be accepted as part of the deal. Backlash from peers also occurs, and it is easier to withstand if one is speaking from a level of authority achieved by experience.

In the last several chapters of the book, Baron focuses on issues of national- and international-scale importance, discussing examples of recent large-impact and controversial issues and the scientists who participated in presenting them. Most of these activities involved established scientists who built reputations among their peers as experts before speaking out publicly. There are also a few examples of more junior individuals who have entered into controversial issues in national forums, though, normally, this area is not one in which we should be encouraging junior scientists to participate. One of the final chapters is titled “Promote a Paper.” While we all think that our individual research projects are of great importance, their significance is usually incremental for the greater good of the science. A paper that may be of importance to larger outside audiences is more likely to be a review or overview paper, usually authored by multiple well-established scientists.

There are a number of different ways in which scientists can reach out to the public and decision makers. (1) Both well-established and more junior scientists can reach out on a local level to explain subjects of current interest. (2) By posting annotated slide shows and short videos on their Web sites and blogs, scientists can help to explain the significance and results of their own research areas to interested members of the public who explore these sites. (3) A smaller group, primarily those who

are well-established national and international experts, can institute communication on a national level to major media outlets and national elected officials.

Overall, this book is valuable and a worthwhile read for marine scientists. Almost all of us can improve our outreach efforts, primarily by helping to interpret the bigger field, and explaining the significance of results from our own research specialties. This outreach will probably be mainly on the local level. More senior scientists, recognized by their peers as the experts, should also increase their efforts to communicate and influence policy on a national level. *Escape from the Ivory Tower* has helpful hints for all of us interested in various levels of outreach.

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